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ABSTRACT

Implying the need for a reexamination of the theoretical bases for second language learning in the secondary school environment, this final report of a 2-year experiment, funded by the U.S. Office of Education and conducted in public secondary schools of Pennsylvania, involved 1,090 students of French or German in 1965-66 and almost 700 in 1966-67. The objective was to assess the effectiveness of various teaching strategies and language laboratory types in the environment of the real school situation. For a related study see ED 021 512. (KM)

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A COMPARISON STUDY OF THE EFFECTIVENESS OF THE TRADITIONAL AND AUDIOLINGUAL APPROACHES TO FOREIGN LANGUAGE INSTRUCTION UTILIZING LABORATORY EQUIPMENT

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October, 1968

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PREFACE AND ACKNOWLEDGEMENTS

The reporting of any research cannot reflect in objective phrases, tables, and numbers the real involvement of the lives of thousands of individuals. Assuming the position of Project Coordinator at mid-stream, I immediately commenced a program of classroom visitation to permit me to see the "faces behind the numbers." Unfortunately, this priviledge is denied the reader.

Rest assured, however, that this report does represent people, not games with numbers. From the underachieving student who often wondered why he was tested to the field consultant driving a thousand miles a month to visit classes, literally thousands of people were involved in the research. Special mention should go to the Project Staff, Mrs. Mary Ellen Allen, Mr. William McDonald, Mr. Ralph Eisenstadt and to Mr. Helmut Baranyi who contributed directly to the completion of this report.

Appreciation is expressed Mr. Emanuel Berger, originator of the Project, Dr. Robert Hayes and Dr. Martin Yanis of the Bureau of Research of the Department of Public Instruction for reviewing this final report and supplying many helpful suggestions. Dr. Milton C. Woodlen and Dr. Alfred D. Roberts, West Chester State College, provided essential guidance and encouragement. Special mention should be made of the real support provided by the administration of West Chester State College in terms of both facilities and personnel.

In the final analysis, however, none of the research could have been undertaken at all without the splendid and continued cooperation of participating teachers and school administrators. Hopefully, they will be able to benefit directly from the findings.

Philip D. Smith, Jr.
Project Coordinator
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SUMMARY

The teaching of modern foreign languages in American secondary schools has undergone two major changes in the past decade, new directions in classroom teaching strategy and the widespread introduction of the language laboratory. Both have been shown to be effective in small-scale controlled situations. The Pennsylvania Foreign Language Research Project was an attempt to assess the effectiveness of various teaching strategies and language laboratory types in the environment of the real school situation.

Funded under Title VII-A of the National Defense Education Act, a large scale experiment was conducted in 104 Pennsylvania secondary schools of all types and diverse geographic and socio-economic areas. Sixty-one French I and forty-three German I classes were assigned to one of seven possible teaching strategy-language laboratory combinations: "traditional," "functional skills" or "functional-skills + grammar" with tape recorders, audio-active laboratories and audio-record laboratories. Class assignment was random across functional skills and laboratory treatment.

For the purposes of the research study, definitions of "traditional," "functional skills" and "functional-skills + grammar" strategies were defined by a selected group of foreign language educators which included Robert Lado, Stanley Sapon, Wilmarth Starr, W. Freeman Twaddell, Albert Valdman and Donald Walsh. Other prominent specialists assisted in various phases of the study. Rebecca Valette contributed by writing a foreign language Listening Discrimination and Sound Production Test for the Project.

Thirty-five pre-experimental, first year and final measures were obtained on 1,090 students from sixty-seven French and German classes over a two-year period. Almost seven hundred students completed a one-year replication. In addition, randomly selected samples were given additional skills tests. Over two hundred students were personally interviewed to determine student attitudes and expectations.

Major objectives and conclusions of the experiment after two years of instruction and an adequate replication included:

1. To determine which teaching strategy among the traditional, audio-lingual or modified audio-lingual approaches best accomplishes the four objectives of the foreign language program in the secondary school - listening comprehension, speaking fluency, reading and writing.

Conclusion: No significant differences existed among strategies on all skills except reading (TLM >) as measured on contemporary standardized tests after two years. "Traditional" classes had achieved significantly higher on 1939-41 measures of reading, grammar and writing by the end of Level I.

2. To determine which language laboratory system is most effective.

Conclusion: The language laboratory of any type, used twice weekly, had no discernable effect on achievement.

3. To determine the best predictors of success in foreign language achievement.

Conclusion: The best over-all predictors of success are prior academic success and a modern language aptitude test.

4. To identify student attitudes toward foreign language instruction.

Conclusion: Student opinion of foreign language study declines throughout the instruction, independent of the teaching strategy employed.

5. To ascertain levels of language mastery.

Conclusion: Published test "norms" and implied in text layout progress were more than most of the experimental population achieved.

6. To identify strengths and weaknesses of selected commercial texts.

Conclusion: Within the functional skills strategies students utilizing Holt, Rinehart and Winston materials did significantly better than students using the Audio-Lingual Materials.

7. To identify teacher factors related to student achievement.

Conclusion: Neither teacher experience in years and graduate education nor scores on the MLA Teacher Proficiency Tests are related to mean class achievement after either one or two years.

The study is continuing with the examination of student progress over an extended three and four year sequence.

A COMPARISON OF THE EFFECTIVENESS OF THE TRADITIONAL AND AUDIO-LINGUAL APPROACHES TO FOREIGN LANGUAGE INSTRUCTION UTILIZING LABORATORY EQUIPMENT

SECTION I - INTRODUCTION

The role of modern foreign language instruction in the American educational process has assumed major importance in recent years. Long a major segment of the curriculum, the improvement of modern foreign language instruction at all levels has become "in the national interest."

The Commonwealth of Pennsylvania has long been committed to the teaching of foreign languages in the public schools. Ample testimony to this commitment is illustrated by the fact that hundreds of language laboratories are installed in its public schools and twenty percent of the teachers of foreign languages have attended NDEA summer institutes. Student enrollment in foreign language courses varies between seventeen and twenty percent of the secondary school population. In support of the foreign language program the State has mandated, "...a minimum of a four-year sequence of a modern foreign language shall be offered by each school system" and requires for certification in the teaching of foreign languages that prospective candidates receive passable scores on the MLA _Foreign Language Proficiency Test for Teachers and Advanced Students_ (Educational Testing Service, 1962).

Implicit in this strong state support for the teaching of languages is the responsibility to provide expert advice on teaching methodology, ultimately determining the effectiveness of the language program. Yet, recent attacks on the purported usefulness of the language laboratory have been instrumental in raising doubts in the minds of both professional educators and interested lay persons previously convinced of its effectiveness (Hocking, 1968). It is indeed surprising that, aside from extensive authoritative statements on the subject, there is little empirical research that can be cited as an effective rebuttal to these challenges. It was therefore important that the profession initiate a study for resolving several basic problems related to secondary school foreign language instruction.

The purpose of this research was to determine the most effective way of integrating the language laboratory into one or more of several alternative teaching strategies. It proposed to investigate this problem as it relates to foreign language teaching programs commonly found in the public secondary school classroom. Present plans are to follow the participating students for the four years that they study the foreign language. However, the first phase of the research reported herein concerned itself with evaluating only the first and second years of instruction.

Although this research was conducted within the Commonwealth of Pennsylvania, the area of the Department's jurisdiction, there can be little doubt that the results will be applicable to many schools throughout the nation. This was assured by utilizing schools that were socio-economically representative and by minimizing the degree to which typical teaching conditions were to be modified. Also, the instructional and testing materials were those commonly used in the teaching of foreign languages in the secondary schools.

BACKGROUND OF THE PROBLEM

Essentially, the profession is confronted with two related questions: (1) Given several alternative teaching approaches to foreign language instruction which of these is better? and (2) Which of the commonly used language laboratory systems is most effective as an adjunct to foreign language instruction?

On the one hand, there is the historically older, and more widely practiced approach to foreign language instruction known as "grammar-translation" or "traditional." In opposition to this there is developing increasingly wide support for the "audiolingual" or "functional skills" approach, the origins of which extend as far back as the seventeenth century. Currently, it is receiving its greatest support from findings in linguistic science. The proponents of these two schools are in disagreement on basic assumptions regarding the nature of language learning and different priorities in selecting foreign language objectives. Each advances a distinct set of methods designed to achieve the terminal language behaviors each deems most important.

It must be emphasized that the terminal behaviors expected of these two approaches to foreign language learning are indeed distinct. This dichotomy is reflected in the basic design, the procedures, and the testing program of this research investigation.

The primary objective of the "Traditional" approach is mastery of the foreign language's syntax and vocabulary. Students are expected to memorize the written forms of words, paradigms, and rules of grammar and to use these to solve linguistic puzzles in the form of English sentences to be translated into the foreign language. Conversational instruction, when offered, is normally placed at the end of a three year sequence (Malecot, 1960). Carroll (1965) suggests that this method is based on a:

> ...modified, up-to-date grammar-translation theory. According to this theory, learning a language is a process of acquiring conscious control of the phonological, grammatical, and lexical patterns of a second language, largely through study and analyses of these patterns as a body of knowledge. The theory attaches more importance to the learner's understanding of the structure of the foreign language than to his facility in using that structure, since it is believed that, provided the student has a proper degree of cognitive control over the structures of the language, facility will develop automatically with use of the language in meaningful situations.

The "Functional Skills" approach finds its strongest proponent in Brooks (1961). The organization of the language program is guided by the following tenets:

> The learner's activities must at first be confined to the audio-lingual and the gestural-visual bands of language behavior; only later will he become active in the visual band...From the start the learner plays a dual role in language, first as hearer, then as speaker. Only when he is thoroughly familiar with sounds, arrangements, and forms does he center his attention on enlarging his vocabulary. In learning the control of structure, what he may at first do as a matter of conscious choice, he will eventually do habitually and unconsciously...The memorization of work lists, lexical equivalents, and paradigms plays no part whatever in his early tasks.

Traditionally, foreign language instruction stresses student mastery of the formal grammar of the target language. This emphasis on grammar can be traced to the influence of eighteenth-century grammarians who "assumed the existence of a universal grammar founded in universal reason and embodied in its purest state in the Greek and Latin of classical literature" (Guth, 1964). The textbook, consisting of carefully graded reading selections and accompanying grammar lessons is the traditionalist's essential pedagogical tool. The assumption is that proficiency in the language can be acquired by learning a set of grammatical rules to which the language is supposed to conform and by mechanically applying these rules. Coleman's (1929) study, which has had wide influence on the teaching of foreign languages in the secondary schools, recommended the single objective of developing reading proficiency as being realistically attainable under typical classroom conditions. That oral mastery has never been a serious expectation of the foreign language program is clearly demonstrated by the almost exclusive use of paper-pencil tests to evaluate student progress in language mastery.

While, as earlier pointed out, the "audiolingual" emphasis in modern foreign language teaching has roots extending back many years, the recent dramatic changes in the approach to foreign language instruction are, in no small measure, due to the findings of linguistic science during the past 30 years. Johnston and Seerley (1961) note several linguistic propositions that have immediate implications for the high school language program. "Language is speech. The written form comes later, considerably later in the progression of language learning which is first hearing and speaking and then reading and writing." In sharp contrast to the formalistic traditional teaching methods, many linguists claim that language learning is a behavioral skill and not an intellectual discipline. Developing this skill, like any other, requires the careful cultivation of language habits that are an automatic, almost unconscious, performance of highly complicated physical and mental processes. Comprehension and accurate reproduction of the sounds of a language, which are the major objectives of the audiolingual approach, can only be achieved by imitating a native speaker or one who has mastered the native accent.

Instead of sole reliance on the textbook, the audiolingual teacher employs a set of teaching techniques and materials specifically designed to develop oral and listening facility. For example, the "dialogue" rather than the reading selection, is the primary instructional tool for the beginning student. A dialogue is a recorded conversation focusing on a real situation which the student can understand, identify with, and enjoy. Its language is the standard, authentic, and contemporary informal language that would be used in equivalent circumstances by native speakers of the same age as the American students in the class. After extensive practice, using such recently devised techniques as modeling, full- and part-choral repetition with build-ups, double repetitions, and constant correction, each student is expected to master the complete dialogue. Mastery implies that the student be able to respond automatically with appropriate selections from the dialogue. Unlike the traditional program, the audiolingual program assesses student proficiency in the listening and oral skills in addition to testing reading and writing proficiency.

The emphasis on imitation, practice and repetition to the point of "over-learning" encouraged many schools that adopted the audiolingual approach to install language laboratory facilities. The usual classroom setting of 30 students per instructor is wholly inadequate if the recommended 15-20 minutes of daily oral practice is to be followed. In the laboratory, each student is able to practice individually without disturbing other students. In addition, Hayes (1963) notes that the language laboratory provides native models of the foreign language for imitation, extensive structure drills, a variety of native voices necessary for understanding the language in its natural setting, and facilities for testing each student for listening and speaking ability.

A practical pedagogical purpose served by including a formal grammatical analysis is that of sustaining student interest. Constant practice and drill with new, and sometimes meaningless, drills would conceivably result in boredom, especially in the case of the bright student who naturally seeks the "why" to grammatical forms he is learning.

Resolving these issues is important because the current ferment in foreign language instruction represents a major curricular change comparable to the revisions that the secondary school science and mathematics programs have undergone. Furthermore, discarding older programs and investing in audio-lingual materials and laboratory equipment is a financial investment of significant proportions. Careful study and deliberate evaluation should be important factors of any decision for change.

PURPOSES AND OBJECTIVES

The two broad areas of concern in this investigation were determining (1) the effects of the audiolingual approach upon student achievement in the learning of a second language, and (2) the type of language laboratory equipment that is most efficient in achieving the goals of the audiolingual program. The study also gathered information related to student achievement in each of the four language skills and the attitudes associated with each of the experimental treatments.

The purpose of a two or three year study was to provide longitudinal data on language learning in the setting of the secondary school. Education, in general, and mastery of a second language, in particular, are longitudinal processes; the appropriate manner in which they are to be studied should be longitudinal. Often, initially dramatic results favoring Method A or Procedure B prove premature when assessments are made over a long period of time.

Carroll (1965), in a recent article, offers several reasons for the dearth of the type of research that is herein reported. Having presented the two major theories of language learning, i.e., the audio-lingual habit and the cognitive code-learning, he suggests that there is need for more information "on which of these theories is a better basis for foreign language teaching." He states:

> At this point the would-be researcher has an important strategy decision to make. One course open to him is to conduct a large scale educational experiment in which the results of teaching based on the audio-lingual habit theory are contrasted with teaching based on the cognitive code-learning theory. This kind of research is feasible, but very expensive and difficult to control. The experimental design would call for some method for assuring that the students taught under the two theories are approximately equal in ability and motivation; ideally, students would be randomly assigned to the two methods, but educational realities may make this impossible. Separate and distinct courses and materials of instruction must be created, and the instructors must be trained to adhere closely to a certain style of presentation.

Of particular significance was Carroll's earlier (1963) advice:

> It may be recommended that useful experiments in foreign languages can be conducted by adhering fairly closely...to patterns of teaching and types of teaching materials which have already been developed and found necessary by foreign language teachers.

FOREIGN LANGUAGE LABORATORY SYSTEMS

The term "laboratory" refers to "a classroom or other area containing electronic and mechanical equipment designed and arranged to make foreign-language learning more effective than is usually possible without it," Hayes, (1963). Included in this definition are classrooms with only one tape-recorder, those with audio-active equipment, and laboratories fully equipped with audio-active-record facilities. Each of these systems is now briefly described.

System I: Tape Recorder

One or more tape recorders are used as program sources of recorded sound. This facility can be used by the student to practice listening skills and, in a limited way, to practice oral drills. However, he cannot control the equipment to provide needed repetitions, nor can he hear native sounds with true fidelity.

System II: Listen-Respond; Audio-Active

In addition to the program sources and equipment included in System I, this system provides microphones for amplification. It is claimed that listening to his own voice through the headset allows the student to correct errors when he is in disagreement with the master's performance. If repeated he will be able to approximate closely the model by successive attempts.

System III: Listen-Respond-Compare; Audio-Active-Record

The addition of separate recording facilities in this system is a major improvement according to some language educators. Principally the student can record and then compare his responses directly with the model, different learning rates can be accomodated, and a practical method for evaluating speaking ability is thus provided.

System I because of obvious economy and elimination of difficult scheduling problems was worth exploring as to its assets and liabilities. Experience and good judgment suggest that, funds permitting, individual student stations with headphones be considered to provide privacy, increased fidelity, and the other advantages discussed above.

In choosing between Systems II and III the profession is in fundamental disagreement. Locke (1960) is convinced that playback facilities are essential to pronunciation and structural mastery. "Listening facilities or audio-active earphones will help by presenting him a model. The earphones...since they merely transmit the air-borne component of the sounds, they make no contribution whatever to helping the student in his really important and difficult job of eliminating the short circuit that prevents objectivity towards his speech production." Hartsook (1960) states, "I should like to go on record as being against the use of student recording in the foreign language laboratory..." In addition to the contention that student recording and playback tends to reinforce mistakes, is boring, and does not materially improve self-evaluation, he reports that experience has shown it too is inefficient and in certain situations hampers progress.

Establishing a foreign language program involves both adopting one of the several teaching strategies as well as selecting one of the basic systems. With the exception of the strictly traditional approach, one might pair any of the strategies with any one of the three laboratory facilities, six alternatives in all, and feel confident that there is both reason and authority to support this choice.

RELATED RESEARCH

In surveying the enormous research literature of foreign language teaching it was decided to omit references to studies which, while pertinent to any investigation of language instruction, do not relate directly to the specific experimental variables of this proposal. Reference citations are further limited to those which have relevance to language instruction at the secondary school level.

Coleman (1929) in an extensive survey of foreign language teaching practices found conditions chaotic. Little or no evidence was discovered to support widely accepted practices and his report emphasized the need for evaluating the effects of the various practices under typical American classroom conditions. The Army Specialized Training Program (A.S.T.P.) was developed with the assistance of linguistic scientists, and is considered by many to be the precursor of the current audio-lingual trend. Birkmaier (1960) reports that a completely objective evaluation of the Army program was never made.

Scheuler (1944) doubted that reading mastery could best be obtained by means of the aural-oral methods employed by the A.S.T.P. Carroll (1963) reports,

> Proponents of 'new-type' courses which initially emphasize audiolingual skills claim, however, that reading skills will be more fluent and facile when the teaching or reading is delayed until the student has achieved a certain degree of mastery of audiolingual skills. There is no research information, however, to indicate whether this claim is sound or how long the teaching or reading should be delayed.

Following widespread interest in the A.S.T.P. and adoption of its techniques the Rockefeller Foundation supported a broad survey of the teaching of a second language. Agard and Dunkel (1948) conducted the study and reported that (1) few students in the aural-oral programs were able to attain "spontaneously fluent speech in one or two years time and that (2) the experimental groups had consistently superior pronunciation compared to conventional groups but lagged in reading proficiency.

Although Carroll (1963) found "much of value in this study," he describes it as deficient in "exact controls and rigorous experimental design."

Most of the efforts following the Agard-Dunkel (1948) study consisted of materials development for audiolingual instruction. Lacking instructional materials, standardized tests to evaluate listening and speaking achievement, and adequate laboratory facilities to accomodate the new program demands, little useful research comparing new and conventional programs was possible (Birkmaier, 1960). Carroll (1963) dismisses most of the available studies as being "poorly controlled or otherwise deficient from the standpoint of valid research methodology."

Pickrel, Neidt, and Gibson (1958) demonstrated the value of tape recordings in junior high school Spanish classes. Buch (1963) compared the effectiveness of four different language laboratory arrangements in beginning French. He reports that the overall best results on conventional and audiolingual tests were achieved by the group that spent eighty percent of their laboratory time with audio-active equipment and twenty percent of the time with the record facilities. Although meticulous care was taken to develop reliable, unbiased, and accurate judge ratings of the audiolingual skills the investigators note several weaknesses in the design which limit generalizing the results. Each experimental treatment was administered to only one class, only one teacher was involved, students were evaluated during the first year only, and the materials were not those normally intended for an audiolingual program.

A study that has attracted considerable interest in foreign language teaching circles was conducted by Keating (1963). About 5,000 students from 21 school districts participated representing French Levels, I, II, III, and IV. For the three skills tested--reading comprehension, listening comprehension, and speech production--significant differences favored the no-laboratory group in nearly all cases. However, a careful reading of this study raises serious doubts regarding the validity of the research and the generalization of these results to other foreign language teaching situations.

Mr. Keating noted on page 24 of his report, "...this study cannot be considered an experiment in any proper sense...since all the students tested were involved in on-going programs." As if to emphasize the research design limitations the following quotation from page 38 is instructive, "...absolutely no provision was made for central control of any kind over the independent districts."

The Bureau of Audio-Visual Instruction, Board of Education of the City of New York (1963) reported on two related studies which are to date the most careful and extensive studies on the effectiveness of the language laboratory in high school. The first "proposed to test measurable improvement in competence in speaking French and in comprehension of spoken French without significant loss in reading comprehension and in written aspects of language study." Significant gains were made by the laboratory groups in speech and listening skills without loss in traditional skills as measured by a standardized French test.

The second of these studies was concerned with the relative effectiveness of three types of language laboratory experiences. Essentially, one group used recording equipment daily, another used only nonrecording equipment daily, and the third group used recording and nonrecording equipment.

> In the global rating (overall quality) of speech, the Record-Playback-Daily group showed the greatest gain... and all experimental groups gained more than the control group in global rating of speech...In no measure did the control (traditional) group make gains significantly greater than all lab groups, whereas, the Record-Playback-Daily group stands first or second in thirteen out of fourteen measures.

Here again the instructional methods, materials, and evaluation instruments were "transitional" and the number of both pupils and teachers is insufficient to permit a definitive conclusion based on the findings.

The most extensively reported research on comparing the two teaching strategies, "traditional" and "audiolingual" or "functional skills," is that of Scherer and Wertheimer (1964). The Scherer-Wertheimer study showed that, at the end of two years of college instruction, students who had a first-year audiolingual background did better in listening and speaking but were equal to or worse than traditional students in reading, writing, and translation. Evaluation of the investigation depended to a great degree upon correlations and the direct comparison of the means of the two groups. This study, while a classic, contained some factors which the present investigation was determined to avoid. Among these were (1) a research population consisting of college students of one language only, (2) the creation of special teaching materials, (3) the small number of students completing the two-year study (N=49) and (4) the inability of the investigators to maintain the spearation of the two groups under investigation.

In 1964 the School District of Philadelphia undertook a nineteen school assessment of "traditional" and "audio-lingual" approaches in French and Spanish utilizing only the text as the instructional variable. (Sandstrom and Rofman, 1967) Each school had both audiolingual and traditional classes assigned. Numerous meetings and workshops were held to minimize variability due to teacher individual differences.

The criteria variables of the experiment were (1) teacher rating of student performance and (2) the MLA _Cooperative Classroom Tests_ in _Listening_ and _Reading_ administered at the end of the two-year period of instruction. No pre-experimental measures are reported. _Speaking_ and _Writing_ tests were administered but not used due to the small sample tested. While no statistical data is reported, the study concluded that the students in audio-lingual classes performed better than "control" (traditional) students on evaluative criteria.

More recently the effectiveness and value of the language laboratory has again been questioned. In his nation-wide study on the foreign language proficiency of college majors

Carroll (1966) observed that students who reported a language laboratory experience did not seem to achieve better than students who had not had such experience. One of the nation's leading school consultant firms, Engelhardt, Engelhardt and Leggett, is advising educational planners that language laboratories do not seem to do an adequate job for the money invested. Hocking (1967) reports the disillusionment of a typical foreign language educator with the language laboratory in his school system.

By 1964 no sufficiently realistic and generalizable research had been undertaken to shed light on specific questions on modern foreign language instruction facing the American secondary school: which strategy or laboratory system works best when translated from a specific local small scale setting into the larger reality of numerous secondary schools? To assist in developing answers to this question, the Commonwealth of Pennsylvania undertook the large-scale in situ experiment which has come to be known as "Project 1330, (later officially as No. 5-0683), An Assessment of Three Language Laboratory Systems." The investigation has been reported in detail (Smith and Berger, 1968) and will be cited often in the remainder of this document. A portion of the "Summary" of the first year report is reproduced here for the convenience of the reader.

SUMMARY, FIRST YEAR

The Pennsylvania Foreign Language Research Project was an attempt to determine the effectiveness of various teaching strategies and language laboratories in the environment of the real school situation. Funded under Title VII-A of the National Defense Education Act, a large scale experiment was conducted in 104 Pennsylvania secondary schools of all types and diverse geographic and socio-economic areas. Sixty-one French I and forty-three German I classes were assigned to one of seven possible teaching strategy-language laboratory combinations: "traditional," "functional skills" or "functional-skills + grammar" with tape recorders, audio-active laboratories and audio-record laboratories. Class assignment was random across functional skills and laboratory treatment.

Students and teachers were given extensive pre-testing, mid-year and post-testing. Twenty-five discrete measures and twelve attitude-opinion indices were obtained on 2,171 students. Three hundred students received additional tests of speaking and writing. Data analysis was based upon correlation and analyses of variance, covariance and regression. For the major portion the class/group mean was used as the statistical unit for analysis.

Important conclusions at the end of one year of experimentation included:

1. "Traditional" students exceeded or equalled "Functional Skills" students on all measures;

2. The language laboratory systems as employed twice weekly had no discernable effect;

3. There was no "optimum" combination of strategy and system;

4. The best combination of predictors of success were the MLA _Cooperative Classroom Listening Test_, the _Modern Language Aptitude Test_ and Language I.Q. as measured by the _California Test of Mental Maturity_ (Short Form).

5. Females achieved better than males;

6. Student attitude was independent of the strategy employed;

7. "Functional Skills" classes proceeded more slowly than "Traditional" classes; and

8. There was no relationship between teacher scores on all seven portions of the MLA Teacher Proficiency Tests and the achievement of their classes in foreign language skills...

CONTINUATION OF THE INVESTIGATION

The major effort of the second year of the study was directed toward assessing student achievement during the second year of instruction. There are distinctive features that characterize the second year of an audio-lingual foreign language program. These result from the philosophy regarding the nature of language which has had a marked influence on the recommended instructional methods. For example, one publisher introduces his approach to the teaching of reading skills with the statement:

> ...Level One makes a careful distinction between two kinds of reading: (1) reading in the sense of pronouncing words and sentences aloud in response to the stimulus of a printed or written sentence, and (2) reading for comprehension. Level Two is concerned with the development of the second type of reading. Its aim is to develop the ability...to read with understanding without translating. (Harcourt, Brace & World, Inc.)

Similarly, there are differences that distinguish the teaching of grammar developing listening and speaking skills, and the instruction in writing at the two levels. One important purpose of the second year study was, then, to assess student achievement in mastery of those skills that are taught at Level Two. Specific Objectives of the second year of the experiment were narrowed to concentrate primarily on the major objectives of the original proposal.

SPECIFIC OBJECTIVES OF THE RESEARCH

1. To determine which of three foreign language teaching strategies is most effective in achieving each of the four foreign language objectives, i.e. listening comprehension, speaking fluency, reading, and writing (main effects).

2. To determine which of three language laboratory systems is best suited, economically and instructionally, to the development of pronunciation and structural accuracy (main effects).

3. To determine which variable, or combination of variables - IQ, total grade point average, and appropriate prognostic test - best predicts student achievement in foreign languages in each of the four foreign language skills and in overall language mastery.

4. To identify and compare student attitudes toward each of the teaching strategies and language laboratory systems.

5. To identify levels of foreign language mastery that are attainable in the secondary school language program.

6. To determine the strengths and weaknesses of selected commercial programs; and

7. To identify teacher factors related to student achievement.

In order to investigate these specific objectives, Project 7-0133, "A Comparison..." was undertaken as an extension of and replication to Project 5-0683 in September, 1966.

SECTION II - METHOD

PART 1 - THE EXPERIMENTAL DESIGN AND CONTROLS

The basic design of any experiment is, of course, determined by the specific objectives of the study with the concomitant influences of the environment and evaluative techniques. Initially conceived by Emanuel Berger, Research Associate, Bureau of Research, Department of Public Instruction, the research schematic was further refined by a number of persons involved in the early stages of the Project. Among these were Dr. N. Sidney Archer of the Bureau of Research, Department of Public Instruction; Dr. Robert W. Cannaday, Jr., then Modern Foreign Language Coordinator for the Bureau of General and Academic Education, Department of Public Instruction; Dr. Alfred D. Roberts, Chairman of the Department of Foreign Languages, and Dr. Milton C. Woodlen, Director of Research, both at West Chester State College.

RATIONALE FOR THE EXPERIMENTAL DESIGN

Discussions among these men and others resulted in the establishment of proposed guidelines and objectives within which framework the actual experimental design had to function. The proposed research, by incorporating a number of factors apparently overlooked in studies reported earlier, attempted to preclude some of the criticisms of research studies noted in the preceding section. Specifically, it was planned to more effectively reduce unwanted variability in teacher behavior by (1) utilizing large numbers of teachers; (2) teacher testing; (3) employment of teachers within certain experience parameters; (4) teacher orientation and training; and (5) frequent observation of classroom behavior. Randomization of confounding factors was attempted by including large numbers of classes and students from many broadly representative schools.

Generality of findings was thought to be increased by use of materials and testing instruments of a type widely used and readily available to all schools. Statistical methods used in evaluation were to be as thorough as the experimental design permitted.

A need was felt to include a "middle-of-the-road" approach between the "traditional" and the "functional skills" approaches. This reflected the thinking of a considerable segment of the modern foreign language teaching profession and is evident in the literature, particularly in the approaches advocated by Rivers (1964), Carroll (1964), and Belyayev (1964).

Accordingly, three teaching strategies were envisioned: the traditional method (TLM), the functional skills method (FSM), and a combination of functional skills plus exposure to formal grammar (FSG). In the same light, the three most widely used electro-mechanical aids needed to be included, the classroom tape recorder (TR), the listen-respond or audio-active (AA) language laboratory or electronic classroom and the audio-record (AR) language laboratory.

ABBREVIATIONS

To facilitate reading of the accompanying tables and text, note that the following abbreviations are used extensively in the reporting:

TLM	Traditional Method
FSG	Functional Skills Grammar (Method)
FSM	Functional Skills Method
TR	Tape Recorder
AA	Audio-Active Language Laboratory
AR	Audio-Record Language Laboratory
M	Male
F	Female

These are often used in conjunction, i.e. FSM-AA-M.

THE EXPERIMENTAL SCHEMATIC

Due to statistical considerations, the experimental unit was the intact class, following the "Nonequivalent Control Group Design"--Experimental Design 10--described by Campbell and Stanley (1963). The arrangement of teaching strategies and systems was patterned on the methods of "The Factorial Design (two factors)" discussed in Linquist (1953). This type of design may be considered preferable in State-directed, *in situ* research undertakings. Existing administrative practices must be honored, "I'm-a-guinea-pig attitude" Campbell and Stanley (1963) is minimized when utilizing intact classrooms, and without differential recruitment related to experimental treatment, the study may approach true experimentation.

The rationale for selecting "factorial design" procedures were (1) it provided increased precision in that the experimental variable(s), e.g., the specific teaching strategy, was employed across different systems; (2) it facilitated analysis of interaction effects in addition to studying the main effects. Finally, the experiment provided teacher, school, and school system replication.

The three teaching strategies and three language laboratory treatments then fell into a seven-celled experimental schematic:

FIGURE I

THE EXPERIMENTAL CELLS

	Classroom Tape Recorder	Audio-Active Laboratory	Audio-Record Laboratory
Traditional	X		
Functional Skills + Grammar	X	X	X
Functional Skills	X	X	X

The asymetrical design resulted from the fact that students in the traditional classes were not expected to utilize language laboratories or classroom tape recorders other than for presentation of materials of a "cultural" or "enrichment" nature.

Independent variables: These are the (1) foreign language teaching strategies, (2) the language laboratory systems, and (3) the strategy-system combinations.

Dependent variables: these were

(1) achievement scores in each of the skill areas at selected points during the academic year, at the end of one, two, and three academic years;

(2) student attitudinal and interest factors.

Languages:

The languages studied were French and German. The inclusion of the most popular foreign languages taught in the public secondary schools was due to the following considerations:

a. It increases substantially the ability to generalize the results. If only a language with one type of structure was studied it is obvious that the findings could not be generalized to languages with very different structures. This alone warranted the inclusion of one Romance and one non-Romance language.

b. Originally the inclusion of Spanish was strongly supported by the Department of Public Instruction's foreign language specialists and project consultants. Dr. Albert Valdman reported that it was extremely difficult to get a group of foreign language teachers who taught different languages to work on problems that seemed to be of mutual concern. Each felt that his own language presented unique problems. Independent of the conclusiveness of the results, teachers whose language was not among those studied would be skeptical that they could apply the experimental findings in their teaching. However, since the study of more than two languages seemed unwieldy and expensive, the investigators concentrated their efforts on the study of French and German, representing significantly different types of languages.

POPULATION AND SAMPLE

In the most restricted sense, the population to which inferences from the Project findings would apply is the "hypothetical" parent population - which is the group consisting of all individuals "like those in the experiment." (Lindquist, 1953) In this case these would be the teachers, students, and schools with the characteristics listed in the discussion of the sample.

However, a survey of schools in Pennsylvania with language laboratory installations supports extending the inferences to the "real" population of all schools, teachers, and students in the Commonwealth, and possibly in the United States. This survey revealed that the schools reporting language laboratories are broadly representative in geographic location, school and district size, teacher ability, instructional expenditure per child, and pupil ability. Installation of the laboratories in some schools and not in others might be readily attributed to other factors irrelevant to the outcomes of the experimental treatment.

Soon after the Project became a reality, school superintendents throughout Pennsylvania were apprised of the experiment and invited to attend regional discussion conferences to consider the proposal in detail. These meetings were held on March 29, 30 and 31, 1965 at Harrisburg, West Chester and Allentown and again on May 4 at California, Pennsylvania. Approximately sixty public school representatives attended each of the four meetings.

The program for each conference was essentially the same: the demonstration of the need for educational research in naturalistic settings by Dr. N. Sidney Archer, a review of research in modern foreign languages by Dr. Alfred D. Roberts and the presentation of the research proposal by Mr. Emanuel Berger. In each case this was followed by a question period to allow those administrators and curriculum planners in attendance to clearly understand the program.

By the end of the 1965 school year, one hundred and twenty teachers had been tentatively identified as Project participants and had agreed to participate. These persons and their administrators were asked to reserve a week in late August, 1965, for a pre-experimental training conference.

Each participating school distrcit was also asked to identify a person to act as the local Project Coordinator, freeing the Superintendent from direct concern with minor administrative affairs. In many cases this person was an Assistant Superintendent or Curriculum Coordinator. They were to prove invaluable to the later relatively smooth functioning of the experiment.

In anticipation of embarking upon a program of evaluation of the effectiveness of the language laboratory, a survey of selected teacher characteristics and laboratory facilities was undertaken. A questionnaire was designed to identify teacher qualifications for teaching the major foreign language, the specific languages being taught, the description of the equipment, and the number of students enrolled in language courses at the specified school. This was sent to each of the secondary schools in the Commonwealth reporting a language laboratory.

The sample schools were selected from among those responding to the survey. Those schools indicating a willingness to participate, which also had the other experimental requisites and ready geographic accessibility, constituted the pool from which the final random choice of experimental subjects was made. The specific school and teacher characteristics required included:

(Note that items 1 and 4 below were not necessarily applicable to the traditional group).

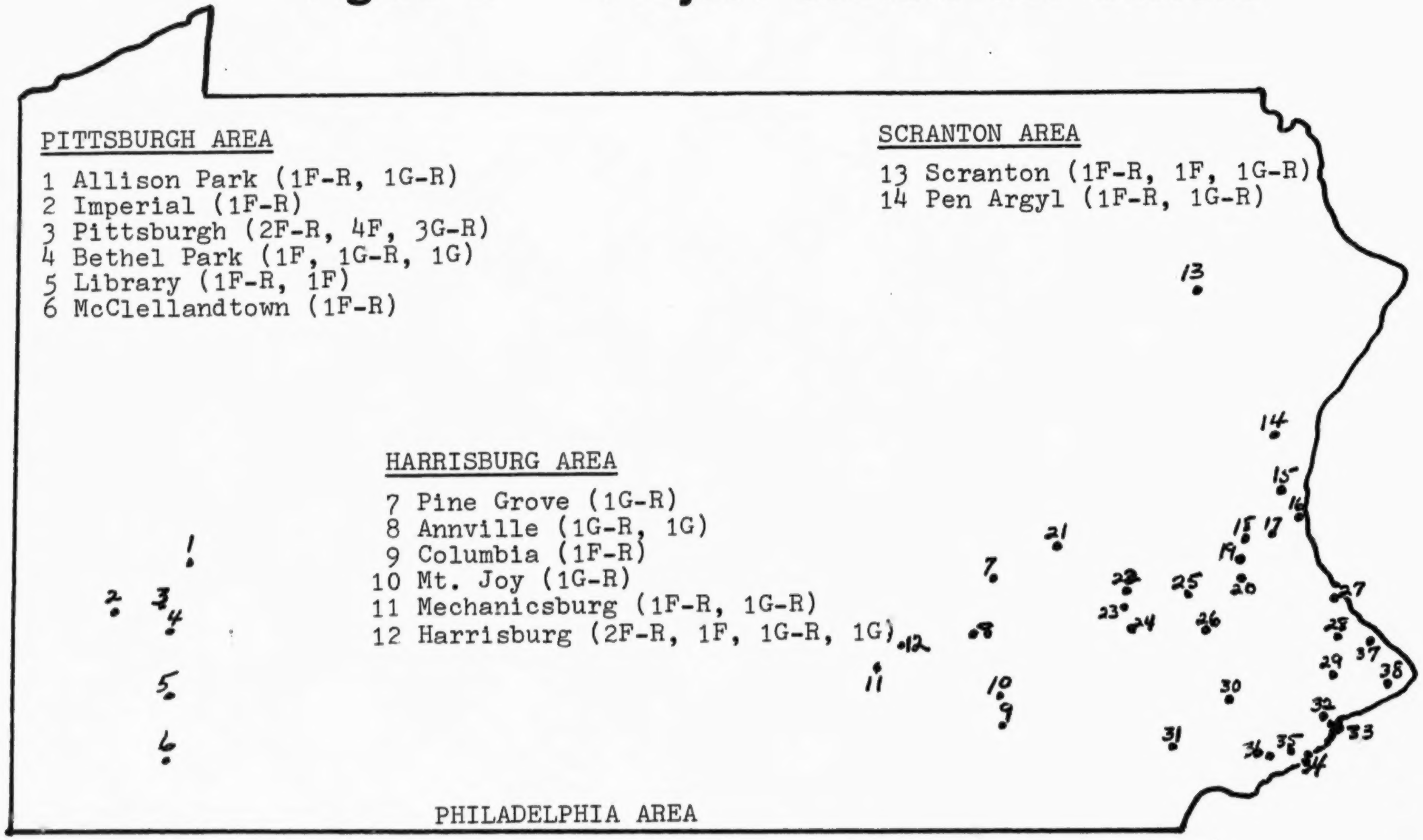
1. The school had a language laboratory.

2. Willingness to abide by procedures demanded by research requirements.

3. Offering of a three and/or four-year sequence of French and German.

4. Teachers had been trained, or were willing to enroll

Figure 2 Project Schools and Classes



PITTSBURGH AREA

1 Allison Park (1F-R, 1G-R)
2 Imperial (1F-R)
3 Pittsburgh (2F-R, 4F, 3G-R)
4 Bethel Park (1F, 1G-R, 1G)
5 Library (1F-R, 1F)
6 McClellandtown (1F-R)

SCRANTON AREA

13 Scranton (1F-R, 1F, 1G-R)
14 Pen Argyl (1F-R, 1G-R)

HARRISBURG AREA

7 Pine Grove (1G-R)
8 Annville (1G-R, 1G)
9 Columbia (1F-R)
10 Mt. Joy (1G-R)
11 Mechanicsburg (1F-R, 1G-R)
12 Harrisburg (2F-R, 1F, 1G-R, 1G)

PHILADELPHIA AREA

15 Nazareth (1F-R,1GR)
16 Easton (1F-R, 1F)
17 Bethlehem (1F)
18 Allentown (1F-R)
19 Emmaus (1G)
20 E. Greenville (1G-R)
21 Cressona (1G-R)
22 Leesport (1G-R)
23 Lauraldale (1G-R)
24 Reading (2F-R,2F)
25 Kutztown (1G-R)
26 Boyertown (1F-R,1F)
27 Kintnerville (1G-R,1G)
28 Doylestown (1G-R,1G)
29 Horsham (1G-R)
30 Plymouth Meeting (1G-R,1G)
31 Coatesville (1F-R)
32 Havertown (1F-R)
33 Philadelphia (4F-R, 1F, 4G-R, 1G)
34 Glenolden (1F)
35 Media (1G)
36 Green Ridge (1F, 1G)
37 Yardley (1F)
38 Fairless Hills (1F, 1G)

R: Replicating Level I Classes

in a course in audiolingual techniques and language laboratory procedures.

5. Teachers had a "reasonable" command of the foreign language.

Schools participating in the research are shown on the map of Figure 2. One hundred and four teachers participated in the first year of experimental instruction. Sixty-one intact classes were able to continue through a full two-year sequence within the experimental design. Of these sixty-one only ten had different teachers for Level I and Level II. Eighteen teachers who had participated in the first year of the Project and ten new teachers were selected to constitute a twenty-eight class, seven hundred student, replication of Level I. Lists of participating teachers and schools appear in Appendix A.

DEFINITIONS OF STRATEGIES AND SYSTEMS

In order to differentiate precisely the objectives, rationale and characteristics of each of the three teaching strategies, a select panel of modern foreign language educators was convened. This group of consultants included:

Dr. Robert Lado, Georgetown University
Dr. Stanley Sapon, University of Rochester
Dr. Wilmarth H. Starr, New York University
Dr. W. Freeman Twaddell, Brown University
Dr. Albert Valdman, Indiana University
Dr. Donald D. Walsh, MLA Foreign Language Program

Meeting for two days in Philadelphia, this group precisely defined the three teaching strategies and three language laboratory systems under consideration. Dr. John Carroll, Harvard University, was unable to meet with the group but held a separate discussion with the research staff on June 2, 1965. Dr. Carroll suggested a fourth teaching strategy, "Traditional Modified" which was not included for logistic reasons.

TEACHING STRATEGY I: THE TRADITIONAL METHOD

The major objectives of foreign language instruction according to this method are:

1. To read with facility in the foreign language.
2. To translate from the foreign language into English and vice versa.
3. To develop an appreciation for the foreign country's

culture, its people and its heritage.

4. To develop a better understanding of the syntax and structure of the student's native language.

Carefully graded reading selections in the text incorporate both the grammar to be learned and the vocabulary items. The student practices the grammar rules by applying them in written form to sample sentences following the lesson. Vocabulary lists are memorized and practiced through translation from English into the foreign language.

Rationale: Traditional Method

The basis for the traditional approach is rooted in both common educational sense and a history of successful experience. Few would doubt that proficiency in a language's grammar accompanied by command of its lexicon will result in the stated objectives. Also, those who have taught and assessed student achievement in foreign language through the years report that effective teaching procedures, as in other academic subjects, produce the desired results. Unless there is convincing evidence to the contrary, "traditionalists" feel justified in supporting a "proven" method in preference to programs that have as yet to prove their worth in the classroom setting. Finally, educators maintain that a well educated person should be acquainted with the literature and culture of other countries.

TEACHING STRATEGY II: THE FUNCTIONAL SKILLS METHOD

The primary objective of foreign language instruction according to the "functionalists" is that the student be able to use the language as it is used in the foreign country. It is considered essential that the four language skills be taught in a progression - listening first to the spoken word, followed by repeating orally that which was heard, then reading the graphic symbols that were both heard and spoken, and, finally, writing that which was heard, spoken and read.

The "functional skills" are taught by means of the dialog and its associated activities. There is opportunity for extensive student practice in both listening and speaking in the target language. Vocabulary is learned only in context while formal prescribed grammatical analysis is avoided.

Rationale: Functional Skills Method

The principle advanced by those supporting this method is that, essentially, language is speech. Written symbols are a derived and secondary form of language. We are able to use our mother tongue effectively long before we can read or write the graphic symbols representing the spoken word. Furthermore, it is claimed that language learning is a skill, not an intellectual discipline. It follows, then, that methods effective in teaching science and mathematics are not ideally suited for cultivating language habits. More appropriately, the student is instructed to practice language forms to the point that his responses are automatic, in much the same way that he uses his own language.

TEACHING STRATEGY III: THE FUNCTIONAL SKILLS-GRAMMAR METHOD

This condition subscribes to both the objectives and the basic methodology of the "Functional Skills Method." The major point of contention is how best to develop structural mastery - the basis of effective language usage - in the school setting.

According to this approach pattern drills are supplemented by explicit instruction in the appropriate grammar. Extreme care is exercised to limit the grammar to clarifying the pattern which was practiced during the dialog - (grammar is not taught independently of the language habits developed).

Rationale: Functional Skills-Grammar Method

Essentially, there is no empirical evidence to support the elimination of formal grammar instruction in teaching a foreign language. Indeed, Mueller (1958) reported that students frequently fail to perceive grammatical signals even after extensive drills. Others argue that the manner in which a child learns his native tongue is not entirely analogous to the way an adolescent learns a second language in the classroom. In the latter case the student can "bring his intellect to bear on his problems and can speed up immeasurably through generalizations, shortcuts, and insights into the way the language operates if, and when, he understands its structure analytically."

Finally, the accompanying explanation might serve to prevent possible student boredom when he indulges in repetitious practice for considerable periods of time.

LANGUAGE LABORATORY, SYSTEM I: CLASSROOM TAPE RECORDER

The simplest audio aid for the modern foreign language teacher is the classroom tape recorder. Its convenience and ease of operation as well as its low cost have made the tape recorder an integral part of the foreign language classroom even in schools equipped with more extensive facilities.

The inclusion of the classroom tape recorder alone as a "laboratory strategy" reflected the insistence of many teachers that it was as effective as a more elaborate language laboratory. Statistically it represented the minimum baseline or "control" strategy.

LANGUAGE LABORATORY, SYSTEM II: AUDIO-ACTIVE (LISTEN-RESPOND)

This constitutes one type of "language laboratory." Each student position is equipped with a microphone, amplifier and headset. Usually there is more than one tape recorder or other program source at the teacher console. Finally, the teacher console is wired for monitoring individual student performance.

The immediate and most cogent argument for this installation is the privacy and isolation afforded each student. Eliminating distracting noises is recommended if students are expected to discriminate new sounds that are distressingly similar to those of his own language and to other sounds in the foreign language.

It is also claimed that hearing his own voice following that of the tape master, with amplification of similar quality, allows for effective correction when there is disagreement. Multiple-program sources provide for small group instruction and facilitate flashbacks to previous lessons that require review.

LANGUAGE LABORATORY, SYSTEM III: AUDIO-ACTIVE-RECORD (LISTEN-RESPOND-COMPARE)

The addition of recording facilities at student positions provides the teacher with a significant tool in developing "functional" skills. Principally, the student records the master and his responses and then compares these during playback. Differing learning rates can be accommodated. This is a practical means for evaluating oral performances, and closer teacher supervision is possible than with less complete installations.

Competent language educators favoring the use of the record facility offer as support an argument based on the method by which language is learned. They claim that the learning of a foreign phoneme occurs as a result of conscious attention to the process of how it is produced. As a result, knowledge of the articulatory phonetics is a definite aid.

INSTRUCTIONAL CONTROLS

As in any behavioral research, careful control of the manipulative independent variables received primary consideration throughout the experiment. These controls concentrated on teacher adherence to the assigned treatment and included teacher measures, teacher training, instructional guidelines, periodic group workshops and careful observation and supervision.

TEACHER CONTROL

The principal sources of error attributable to teacher effects are (1) differences in teacher ability due to training and/or experience, (2) teacher non-adherence to assigned conditions in the experimental program, and (3) the nonspecificity of the assigned treatment and the daily teacher responsibilities. Because teacher adherence to the assigned treatment is a most important factor to control, a number of steps were taken to minimize even unintentional deviations.

1. Teacher Numbers: The experiment was predicated on the basis of involving over one hundred teachers in an attempt to minimize bias due to teacher variation.

2. Teacher Ability Control: All teachers who volunteered to participate in the experiment were given the *Foreign Language Proficiency Tests for Teachers and Advanced Students*, Educational Testing Service, 1962. In addition, teachers who had recently spent considerable time (two or more years) in the country where their foreign language is spoken were excluded. Participating teachers were expected to have had at least two years of teaching experience.

3. Control for nonadherence to assigned treatment:
a. Selection of Cooperating Teachers: Participants were selected from a pool of teachers who had the support of their schools and were willing to commit themselves in advance to the requirements of the experiment.

b. Pre-experimental Workshop: One of the single most important controls of the variables of the research project was the week-long orientation meeting and workshop held from August 22 through August 25, 1965. Here the Project Staff and participating teachers met with several Consultants on the campus at West Chester to discuss the implementation of the Project in detail.

The workshop provided for (1) an orientation to the need for the limitations on educational research; (2) a detailed introduction to the experiment; (3) several sessions on testing with particular emphasis on foreign language testing; and (4) the assignment of teachers to strategies and training in two laboratory types utilizing both college and local school facilities.

Each teacher was thoroughly briefed in his expected role and in the teaching strategy he was expected to employ. Detailed guidelines had been prepared for each teaching strategy and language laboratory treatment. Field Consultants and Workshop Consultants spent many hours in small group meetings training teachers in their assigned strategy.

Extra-Project Consultants for the workshop included:

Dr. Kenneth W. Mildenberger, Modern Language Association
Dr. J. William Moore, Chairman, Department of Education, Bucknell University
Dr. N. Sidney Archer, formerly Director, Bureau of Research, D. P. I.
Mr. Eugene Hogenauer, MLA Test Development Committee
Mrs. Mariette Reed, Educational Testing Service
Miss Terry Gamba, Foreign Language Specialist, D.P.I.
Mr. Harold Gruver, Hanover School District
Dr. Douglas Ward, Pittsburgh School District

The Project Staff had assumed that teachers agreeing to participate in the experiment were better professionally prepared than they appeared to be at the initial meeting. Many were totally unfamiliar with the text materials that they were to use with experimental classes. The pre-experimental training thus proved of great benefit in orienting teachers to the research project. Teachers were compensated for participation in training workshops, for periodic group meetings and for collection of additional student data.

In addition to the pre-experimental meeting, three bimonthly evaluation meetings were held in November, 1965, and January and March, 1966. At these sessions general discussions of matters pertaining to the project and instructions relating to procedures were considered. A prominent feature of these sessions was the small group meetings structured around the various strategy-systems in which considerable attention was given to the problems peculiar to each group. Appropriate teaching techniques were demonstrated by selected teachers in each strategy-system and in panel discussions relevant topics were presented.

All teachers' meetings were held both on the campus of West Chester State College and in the Pittsburgh area to insure teacher attendance. A final first-year meeting was held in May, 1966, to insure uniformity of final student testing dates and procedures. Mr. F. Andre Paquette of the Modern Language Association addressed the West Chester group while Dr. Joseph Mastronie of the University of Pittsburgh spoke to teachers in both western Pennsylvania and at West Chester.

c. New Teacher Orientation: With the extension of the research into a second year and the establishment of a replication of the first year of the experiment, some twenty new teachers were added to the Project population, ten among the sixty-one continuing classes and ten in the Level I replication. New Level I teachers attended a special pre-instructional orientation workshop in Philadelphia on September 10, 1966 where their role was carefully delineated. The ten new teachers with second-year continuing classes were individually oriented by their assigned Field Consultant. Expected roles, attitudes and expectations were carefully explained. When it became apparent on visitations that one new teacher was attempting to circumvent the purposes of the research experiment, her class--some twenty students who had been carefully observed and measured over a two-year period--were summarily dropped from the experimental population.

d. Second-Year Evaluation Meetings: Four evaluation meetings during the second year of instruction enabled the Project Staff to reiterate the necessity for adherence to assigned teaching strategies, to receive feedback from Project teachers and to discuss procedures for upcoming testing. In addition, notable speakers were brought in to enhance the professional awareness of the Project teachers. Mr. P. Paul Parent of the Pennsylvania State University and Dr. Joseph Mastronie of the University of Pittsburgh met with Project teachers on November 5 and November 12, 1966 at Pittsburgh and West Chester, Dr. Wilmarth Starr addressed the spring evaluation meeting on April 1 at Plymouth-Whitemarsh and Mr. Alfred Smith of the Ohio State University spoke to the Pittsburgh area teachers on April 8, 1967.

e. Third-year Evaluation Meeting: A final evaluation meeting was held on the campus of West Chester State College on May 4, 1968. All teachers who had ever been involved in the Project for any of the three years 1965-68 were invited to attend and participate. The meeting provided an opportunity for reaction to the findings of the experiment and to gain insights regarding the teachers' viewpoint of the research. Dr. Gertrude Moskowitz of Temple University discussed her work with interaction analysis and foreign languages with the participants.

TEXT MATERIALS

The data submitted to the Project by prospective participating schools illustrated one of the complications of broad-scale research in the naturalistic setting of the public school classroom. The approximately eighty school districts indicated twenty-seven different sets of texts and instructional materials were utilized in the teaching of French and German. It was evident that this was one of the several potentially confounding variables which would seriously affect the results of the study. It was decided to reduce this number of texts to minimize this source of error.

All participating classes were required to adopt one of the following texts during the two-year instructional period. Schools purchased the complete program. Analyses and guidelines were written by the Project Staff for each text (Appendix B). Texts were specifically identified as representative of a particular approach by the panel of experts (p.21).

FRENCH I
- *Cours Elementaire de Français*, Dale and Dale (TLM)
- *Parlez-Vous Français?*, Huebener and Neuschatz (TLM)
- *New First Year French*, O'Brien and LaFrance (TLM)
- *Audio-Lingual Materials, Level I* (FS)
- *Ecouter et Parler*, Cote, Levy and O'Conner (FS)

FRENCH II
- *Cours Moyen de Français*, Dale and Dale (TLM)
- *Oui, Je Parle Français!*, Huebener and Neushatz (TLM)
- *Audio-Lingual Materials, Level II* (FS)
- *Ecouter, Parler et Lire*, Cote, Levy and O'Conner (FS)

GERMAN I
- *A First Course in German*, Huebener and Newmark (TLM)
- *Audio-Lingual Materials, Level I* (FS)
- *Verstehen und Sprechen*, Rehder, Twaddell and O'Conner (FS)

GERMAN II
- *A Second Course in German*, Huebener and Newmark (TLM)
- *Audio-Lingual Materials, Level II* (FS)
- *Sprechen und Lesen*, Rehder, Twaddell and O'Conner (FS)

Classes continued through the second year of experimental instruction moved into the respective Level II book at the conclusion of the first text.

INSTRUCTIONAL GUIDES

To assist in the adherence of teachers to assigned strategy and laboratory treatments, specific guides were established by the Project Staff. These were essentially the same for each instructional strategy, differing only slightly in detail of coverage depending upon the text under consideration. Samples are reproduced in the Appendixes for German only in the interest of economy since the French differed only in texts mentioned and units to be covered. Each teacher received the guidelines applicable to his assigned strategy and laboratory system. Guidelines were developed in detail for all Level I and Level II texts. Copies accompany the formal final report submitted to the United States Office of Education.

For the Functional-Skills + Grammar classes the grammatical generalizations had to be written for those texts not including formal grammar. These were written by the Project Staff and included in the appropriate teacher's guide.

Teachers were expected to be thoroughly familiar with the guidelines and examples. They served not only as a basic blueprint for daily lessons but as a common reference point for discussions with the Field Consultants. These observers used the guidelines as a frame of reference for evaluation of teacher adherence to the assigned strategy.

FIELD CONSULTANTS

The Field Consultant was envisioned as the key figure in coordinating and unifying the many people involved in the Project. They participated in the writing of the guidelines, in the meetings with the language consultants, and were all competent and knowledgeable classroom teachers.

The expected role of the Project Field Consultants was defined and criteria established for the positions. These included:

1. Pennsylvania permanent certification to teach either French or German.
2. Minimum of five (5) years of teaching experience.
3. Master's degree in secondary education or language field, or equivalent supervisory experience.
4. Experience in the use of the language laboratory.

Field Consultants were employed through the regular procedures established by the Department of Foreign Languages at West Chester State College. Four competent Consultants were employed and assisted actively in laying the groundwork for the experiment. They were expected to visit each Project classroom about twice a month, discuss the experiences of the teacher and advise teachers and administrators of forthcoming Project activities. They were not concerned with judging teacher performance as it related to the local school situations but only as it concerned adherence to the assigned teaching strategy. The Field Consultant then was to observe, advise and to act in a liaison capacity.

Field Consultants completed a report form after each teacher visitation. This was intended to describe the lesson observed and to relate it to the assigned strategy. The preliminary instrument was changed in January, 1966, to one which allowed a more precise numerical assessment of adherence on a single page. These are reproduced in the Appendixes.

Throughout the Project the field observers met bi-weekly with the headquarters staff and reported on the progress of the investigation. Problems of policy and procedure were resolved and coordination of action insured by these frequent contacts which permitted discussions among the various Field Consultants.

Teachers deviating markedly from the assigned strategy-system were dropped from that assignment and from the Project. Often the teacher remained totally unaware of this action. Field Consultants traveled many thousands of miles to visit widely scattered Project schools. One Consultant remained in residence in the Pittsburgh area for the full two-year period of the experiment.

PART 2: CONDUCT OF THE RESEARCH

IMPLEMENTATION OF THE RESEARCH

With the granting of funds to support the proposed research under USOE Grant OE-7-48-9013-272, the Pennsylvania Foreign Language Research Project was established March 1, 1965, with headquarters at the Cooperative Research Center, West Chester State College. Located approximately twenty miles southwest of Philadelphia, West Chester is the largest of the Pennsylvania State Colleges. The Foreign Language Research Project Staff was added to the regular college faculty for fiscal purposes with academic rank based upon the state college personnel system. The Project received full cooperation and support from the college, including the services of the Data Processing and Computer Center.

As described in Part 1, one of the first undertakings of the Project was to enpanel a select committee of foreign language educators to establish precise definitions of the various teaching strategies and guidelines to be followed by teachers within each treatment. In addition, the counsel of several other noted foreign language educators was solicited on various aspects of the research design and evaluation. These included Dr. John Carroll, Harvard University; Mr. F. Andre Paquette of the Modern Language Association; Dr. Harold Bligh, Harcourt, Brace and World, Inc.; Dr. William Locke, Massachusetts Institute of Technology; Mrs. Eleanor Sandstrom, Philadelphia City Schools; and Mrs. Miriam Bryan, Educational Testing Service.

Toward the close of the first year of experimental instruction it became obvious that continued experimentation and research as well as replication were highly desirable. Accordingly, an additional application for an extension of the Project was submitted to the United States Office of Education. When approved as Project 7-0133, "A Comparison of the Effectiveness of the Traditional and Audiolingual Approaches to Foreign Language Instruction Utilizing Laboratory Equipment," immediate steps were taken to extend and replicate the research.

PROJECT STAFF

During the second and third years of the instructional phase of the Foreign Language Research Project, the following persons served on the professional Project Staff at West Chester State College:

Philip D. Smith, Jr., Ph.D., Coordinator (1967-68), Foreign
Language Research Projects
Alfred D. Roberts, Ph.D., Supervisor of Instruction, Chairman,
Department of Foreign Languages (1965-67)
Ralph A. Eisenstadt, M.A., Field Consultant (1965-68)
Assistant Professor
William E. McDonald, B.A., Field Consultant (1965-67)
Instructor
Mary Ellen Allen, M.A., Field Consultant (1966-67)
Instructor
Helmut A. Baranyi, M.Ed., Field Consultant (1967-68)
Assistant Professor
Haydee O. P. Ern, M.E., Computer Programmer (1966-67)
Lecturer

ASSIGNMENT OF CLASSES TO TEACHING STRATEGIES

Randomness of assignment of classes to experimental treatments was not entirely practical due to conditions dictated by the real school environment. Certain modifications from the ideal had to be made and are discussed below. For example, some schools did not have any student recording facilities and could not be included for possible selection in the audio-record (AR) group. It was also considered unwise to assign teachers to a classroom teaching strategy to which they had a strong objection.

In the main, traditional classes were taught by teachers who expressed a preference for this strategy. Such was not always the case since many teachers indicated a willingness to dedicate themselves to what ever strategy they were assigned. These and the Functional Skills Method (FSM) and Functional-Skills + Grammar (FSG) groups were arbitrarily and randomly assigned to their strategies.

Laboratory treatments depended upon the individual facilities of each school. Schools with no laboratory facilities were, of necessity, assigned to the Tape Recording (TR) group. Laboratories with no recording facilities were by definition excluded from the AR group and were assigned to the Audio-Active treatment. In many cases laboratories had only enough recording facilities for part of the class. These classes were then envisioned as "split" classes, one small class of Audio-Recording (AR) within the same strategy. Students were assigned to each treatment by use of a random numbers table. Statistical analysis of interaction among these "split" classes was included in later data processing and evaluation.

It was possible to completely randomly assign fifty-three Level II classes, thirty-one French and twenty-two German, among the Functional Skills, Functional-Skills + Grammar, Audio-Active and Audio-Record treatment combinations. The complete breakdown within each treatment is illustrated in Figure 3.

FIGURE 3

DISTRIBUTION OF CLASSES BY TEACHING STRATEGY AND LABORATORY SYSTEM, SECOND YEAR

French I, 1965-66

TLM	11

	TR	AA	AR
FSG	3	12	8
FSM	3	17	7

German I, 1965-66

TLM	6

	TR	AA	AR
FSG	5	9	4
FSM	4	10	9

French II, 1966-67

TLM	4

	TR	AA*	AR*
FSG	2	5	7
FSM	2	3	2

German II, 1966-67

TLM	6

	TR	AA*	AR*
FSG	4	2	3
FSM	3	6	2

Replication Group

French I, 1966-67

TLM	3

	AA*	AR*
FSG	8	8
FSM	7	7

German I, 1966-67

TLM	1

	AA*	AR*
FSG	5	5
FSM	4	4

* Classes split randomly into AA and AR sub-classes

In order to avoid both direct competition between experimental classes and experimental contamination by teachers and students "comparing notes," it was felt advisable to permit only one teaching strategy within each school building. Therefore, while an individual school could have several Project classes in both French and German, _within that school only one teaching strategy was assigned_.

In essence, it was felt by the research staff that the research design was not seriously impaired in the transfer into the real school environment. Random assignment of classes between the two functional skills strategies and the various language laboratory types was largely maintained and enough classes were involved to minimize extraneous variables.

MEASUREMENT INSTRUMENTS

In order to duplicate the conditions and advantages available to the normal school district, the Foreign Language Research Project based its primary evaluation program on standardized instruments. All instruments were administered to the total student population with the exception of a ten percent random sample chosen for administration of the more lengthy and individualized portions of the final tests. In cases where standardized tests to evaluate certain student skills and attitudes were not available, instruments were produced for the Project. The testing program and the specific tests selected reflected the counsel of Dr. John Carroll in the discussions on the original experimental design.

TABLE 1

SKILLS AND INSTRUMENTS

Foreign Language Behavior	Criteria
1. Listening Comprehension	_MLA Cooperative Classroom Listening Test_
2. Listening Discrimination	Valette _Listening Discrimination Test_
3. Speaking	_MLA Cooperative Classroom Speaking Test_ Valette _Sound Production Test_
4. Reading	_MLA Cooperative Classroom Reading Test_
5. Writing	_MLA Cooperative Classroom Writing Test_
6. Attitudes	_Student Opinion Scale_ (semantic differential)

At the beginning of the 1965-66 year, immediately after the opening of school and before instruction in the foreign language commenced, a number of pre-experimental tests were given to students in Project classes. These had two purposes: (1) to measure student native ability and aptitude in order to permit the establishment of predictive criteria and (2) to determine the amount of prior exposure of Project students to foreign language instruction. While it has been maintained that foreign language permits an ideal setting for research since it presumes a "zero" starting point (Carroll, 1963), it was decided to administer a foreign language pre-test due to the possibility of student exposure to some programs of foreign languages in the elementary schools, to instruction by television, to exposure by travel and the possibility of a foreign language background in the home.

During the first few days of school, original Project students took the *California Short-Form Test of Mental Maturity*, *The Modern Language Aptitude Test* (short form), the *Cooperative French Test* (1939) or the *Cooperative German Test* (1941), and the *Listening Comprehension* portion of the MLA *Cooperative Foreign Language Tests*. Finally, each student completed an attitude and orientation inventory, the *Student Opinion Scale*, to assess his feelings toward foreign language instruction before such instruction commenced and answered specific questions concerning his expectations and aspirations.

The mid-year testing program, completed in January, included the *Listening Comprehension* and *Reading* portions of the MLA *Cooperative Foreign Language Tests*, a second administrtion of the *Student Opinion Scale* and the administration to all students of the *Listening Discrimination Test* for French and German especially developed for the experiment by Dr. Rebecca Valette of Boston College. In addition, a randomly selected ten percent sample of the entire student population was administered the *Speaking* portion of the MLA *Cooperative Language Test*.

The final testing was done in May and included a re-testing of the students on the *French Cooperative Test* and the *German Cooperative Test* as well as the *Listening Comprehension* and *Reading* portions of the MLA *Cooperative Foreign Language Tests*. The same ten percent sample of students again completed the *Speaking* portion and for the first time the *Writing* section of the *MLA Tests*. A third administration of the *Student Opinion Scale* was completed for all students.

During the second year of instruction the testing program was less rigorous. Both continuing and replicating students took the MLA *Cooperative Classroom Listening Test* in September 1966. Continuing students took the *Reading Test*. Replicating students were given the *Modern Language Aptitude Test* and the *California Test of Mental Maturity* as pre-experimental measures. At mid-year both groups took the *Listening* and *Reading* Test again in alternate form. At the end of the year the same tests plus the Valette Listening Discrimination Test were given to all students. A randomly selected ten percent sample of all classes were given the Speaking and Writing Tests, the Valette Sound Production Test and a personal interview to assess attitudes and expectations. All students completed the Student Opinion Scale during the fall, winter and spring testing.

MLA COOPERATIVE CLASSROOM FOREIGN LANGUAGE TESTS

The Cooperative Classroom Foreign Language Tests were developed under the direction of the Modern Language Association and are published by the Educational Testing Service. They are available in two levels and in two forms. Alternating forms of the beginning, "L", level were used throughout the experiment for Levels I and II with the advanced "M" form utilized as a final measure for Level III. These tests reflect current concepts and instructional objectives of modern foreign language instruction. The Listening portion of the test which was administered as a pre-, a mid-, and a post-experimental measure is contained on a tape recording. The Reading and Writing portions of the test can be completed by the student in a test booklet while the Speaking protion must be individually administered and recorded on tape.

The scoring of the Speaking Test is a demanding and possibly subjective process. In order to insure that this test was evaluated accurately, the Project Field Consultants were especially trained by the Educational Testing Service. A training session was provided for them at the ETS Center in Princeton, New Jersey, and consultants from the Educational Testing Service visited Project headquarters at West Chester State College in a follow-up training session. At the conclusion of these two training periods the Field Consultants were considered to be adequately trained to score the Speaking Test objectively.

STUDENT OPINION SCALE

A student attitude inventory was developed for the Project by Dr. Milton C. Woodlen and Mr. Emanuel Berger. The scale consists of student reactions to a single question concerning foreign language instruction and permits a choice among eighteen descriptive polar adjectives. It is reproduced in Appendix A. The second portion of the attitude inventory was changed at various times throughout the experiment in order to assess various aspects of the student's self concept and aspiration. The first administration included a fourteen item inventory of self-rating concerning foreign languages. The student was also asked to predict how long he thought he would study a foreign language and what foreign language skills he considered important to himself as an individual. Later administrations included the semantic differential scale with varying student questionnaires. The Student Opinion Scale was administered three time during the year.

LISTENING DISCRIMINATION TEST

The Project Staff and consultants were concerned that none of the tests available were designed specifically to measure the exact ability of a student to discriminate the sounds of a foreign language. The Listening portion of the MLA Tests are a measure of the student's ability to comprehend the language in life-like situations. It was thought desirable to be able to measure the student's exact ability to discriminate among the phonemes of a foreign language. Under a separate contract with the Department of Public Instruction, Dr. Rebecca Valette, Director of the Language Laboratory of Boston College and an authority on foreign language testing, developed Listening Discrimination Tests for French and German.

These tests are designed to measure every important sound in the language and consist of four parts: discrimination between very similar sounds in both English and French or German, the ability to identify the same or different sounds in the target language, the ability to identify the same and different vowel sounds in French or German, and the ability to discriminate rhymes in French and German. These four portions are combined to provide a total score which is considered to be indicative of the student's ability to closely discriminate among the sounds of spoken French and German. The tests were produced by Dr. Valette and recorded by native speakers for administration to the Project population. All students took the Listening Discrimination Test in January. Since this was the only administration of this test it was considered a "final" measurement.

After the close of the instructional period an extensive psychometric analysis of the Listening Discrimination Tests was made at the Pennsylvania State University (Williams, 1967). The "Summary and Conclusions" portion of this report observe in part:

> The psychometric characteristics of the FLDT and the GLDT were almost identical. The relationship of many of the items in the two tests to the total-test performance is quite low. This leaves open the question of whether the measurement of different linguistic areas in the FLDT and GLDT was actually accomplished in general....
>
> ...In general, the fact that some of the items show outstanding discrimination indicies, makes the examina-

> tion look quite promising. However, an investigation of the validity of the test by some external criterion would seem necessary...

While this validation has not been undertaken, the test was utilized as an indication of aural discrimination in the final analysis.

SOUND PRODUCTION TEST

Dr. Valette completed a German/French Sound Production Test for the Project in 1967. This companion test to the Listening Discrimination Test measures exactly the same critical sounds on a one-to-one correspondence, perception to production. The test is of the mimicry type in which the student imitates a short phrase uttered by a native speaker. Professional recordings were made of both tests by the National Tape Service.

TEACHER ADHERNECE TO ASSIGNED STRATEGIES

The Project was fortunate in that the foreign language texts selected by the guiding panel of specialists (p. 21) clearly differentiated between the two fundamental teaching strategies. "Traditional" and "functional skills" or "audiolingual" texts contrast sharply and strongly inhibited teachers from marked deviation from their prescribed fundamental approach. In both cases a perversion of the philosophy of the authors of either type of materials would have required an extensive process of rewriting and editing on the part of the individual teacher. Purposefully irregular classroom observations were intended to detect such deviations from assigned experimental treatments.

Each teacher was visited a number of times during the year by his/her assigned Field Consultant. Visits were attemped bi-weekly and were not announced in advance. To provide the Field Consultant with criteria for evaluation of strategy adherence and for discussion with the teachers, a short check list was developed appropriate for each strategy. Reproduced in Appendix C, each major characteristic of each strategy could be rated by the Field Consultant as follows:

1. excellent
2. good
3. fair
4. poor
5. very poor

~~0.~~ not observed

These ratings were established by the Field Consultants themselves and discussed frequently at bi-weekly staff meetings. Here the Field Consultants met with the Supervisor or Instruction and/or the Project Coordinator. Observation and adherence were discussed on an individual teacher basis.

Obviously, not every possible teaching procedure was observed each time the teacher was visited--the check list provided for all main characteristics of the strategy. By the same token, each unannounced school visitation could not be objectively recorded on an observation sheet. Despite the fact that teachers would advise their Field Consultant of major changes in the schedule, the real school setting dictated visitations on days when there were teacher illiness, fire drills, classes shifted or cancelled, student testing and other interruptions of the class routine.

All of these factors combined to provide the Project Staff with a large number of Observation Reports of visitations made on an unannounced and irregular basis. Standards for ratings were established and refined in the bi-weekly staff meetings. These ratings and the overall "mean rating" are shown in Tables2-4 where data from all Observation Reports dealing with each strategy was combined to show a composite rating for each method.

TABLE 2

ADHERENCE TO STRATEGY - "TRADITIONAL" - SECOND YEAR

Rating Scale	Ratings 1	2	3	4	5	Item Mean
1. Vocabulary drill	8	6	1	--	--	1.53
2. Translation of reading lesson	15	3	2	1	--	1.48
3. Grammar--formal analysis	19	4	2	--	--	1.32
4. Pronunciation--teacher--max.¼ of class time	9	12	7	--	--	1.93
5. Pronunciation--student--max. ¼ of class time	--	8	16	3	--	2.81
6. Reading for total comprehension	12	6	5	1	--	1.79
7. Writing--free composition	1	1	1	1	--	2.50
8. Culture (refinement)	7	4	4	--	--	1.80
9. Use of tape recorder	--	--	1	--	--	3.00
10. Use of visual aids	2	5	3	--	--	2.10
	73	49	42	6	0	
						Overall Mean=2.03

TABLE 3

ADHERENCE TO STRATEGY-"FUNCTIONAL SKILLS-GRAMMAR"-SECOND YEAR

Rating Scale	Ratings 1	2	3	4	5	Item Mean
1. Teacher speaks foreign language	40	24	8	--	--	1.56
2. Students speak foreign language	6	36	26	4	--	2.39
3. Grammar: Descriptive; use before rules	43	22	1	1	--	1.40
4. Speaking only what was listened to	61	8	2	--	--	1.17
5. Reading as direct communciation	41	19	4	--	--	1.42
6. Reading only what was listened to and spoken	60	4	1	--	--	1.09
7. Writing only what was listened to spoken and read	56	2	--	--	--	1.03
8. Language as a cultural behavior pattern	67	3	--	--	--	1.04
9. Testing as demonstration of functional proficiency	28	5	1	--	--	1.21
10. Average use of tapes--ten minutes per day	27	19	9	1	--	1.71
11. Average pronunciation drill--3-5 minutes per day	9	13	26	3	1	2.50
12. Vocabulary taught in context only	65	4	1	--	--	1.09
	503	159	79	9	1	
			Overall Mean=1.47			

TABLE 4

ADHERENCE TO STRATEGY-"FUNCTIONAL SKILLS METHOD"-SECOND YEAR

Rating Scale	Ratings 1	2	3	4	5	Item Mean
1. Teacher speaks foreign language	26	7	2	1	--	1.39
2. Students speak foreign language	2	17	14	3	--	2.50
3. Grammar: Subsidiary to functional skills	23	8	2	--	1	1.47
4. Speaking only what was listened to	30	4	1	1	--	1.25
5. Reading as direct communication	20	9	1	--	--	1.37
6. Reading only what was listened to and spoken	25	3	--	1	--	1.21
7. Writing only what was listened to, spoken and read	24	--	--	1	--	1.12
8. Language as a cultural behavior pattern	32	3	--	--	1	1.19
9. Testing as demonstration of functional proficiency	10	2	2	--	1	1.67
10. Average use of tapes--ten minutes per day	12	11	2	3	1	1.97
11. Average pronunciation drill--3-5 minutes per day	6	4	8	3	1	2.50
12. Vocabulary taught in context only	32	3	--	1	--	1.17
	242	71	32	14	5	
			Overall Mean=1.57			

It can be seen that the majority of classroom activities in each strategy were rated by the Field Consultants as either "Excellent" or "Good." Therefore, activities observed were largely of the type expected from the strategy. Teachers in "Functional Skills" strategies received more "Excellent-Good" ratings than "Traditional" teachers. Field Consultants observed students in TLM classes pronouncing the foreign language more than had been anticipated. While exemplary "traditional" teaching has never excluded the spoken language, it was presumed to have been utilized le than it was in reality observed.

Comparable "overall means" for each strategy are rather close for both years of the experiment:

	TLM	FSG	FSM
First Year	2.37	1.38	1.51
Second Year	2.03	1.47	1.57

with a lower ("closer") rating for "traditional" teachers in Second Year. It should be noted that the Field Consultants stated that the poorer teachers elected to leave the experiment at the conclusion of the first year.

Of particular interest in regard to teacher assignment and adherence to assigned strategies is the first portion of a transcript of their candid remarks (see Appendix H), at a meeting a full year after the conclusion of the experiment. Teachers expressed the opinion that they had fully attempted to teach as they had been asked. In the final analysis of teacher adherence, however, the basic materials dictate what activities occur in the transfer of theory into the reality of the average classroom. Gross departures were easily detected by the experienced observers.

FIGURE 4

CHRONOLOGY OF THE RESEARCH

March, 1965-Project Funded
...Discussion and Planning Meetings
...Identification of Participating Schools
June ...Consultant Panel Meeting
July-August ...Preparation of Materials
August ...Pre-experimental Workshop
September ...Pre-experimental Testing
November ...Fall Evaluation Meeting
1966
January ...Mid-year Evaluation Meeting
February ...Mid-year Testing
March ...Spring Evaluation Meeting
May ...Final Evaluation Meeting
Final Testing
Preparation of materials... July
New Teacher Workshop... September
Pre-experimental testing
Replication begins
Fall Evaluation Meeting... November
1967
Mid-year Testing... January
Spring Evaluation Meeting... April
Final Testing... May
Data Compilation begins... June, 1967

SUMMARY OF THE INSTRUCTIONAL PHASE

All students in the experimental population completed pre-, mid-year and final testing on a number of skills over a two-year period. Measures of intelligence, aptitude and achievement were obtained before instruction in the foreign language commenced. Mid-year measures were obtained on the Listening and Reading skills as well as on the exact ability of the student to discriminate among the important sounds of the foreign language. Final testing included not only the Listening and Reading skills but a measure of Vocabulary and Grammar for all students the first year. A ten percent random sample of all students was tested in the Speaking and Writing skills both years. Identical student attitude inventories were given before, during and at the completion of each year of foreign language instruction in order to assess student attitude shifts and to relate these to the method of instruction.

Any student who did not complete every single measure was automatically dropped from the experimental population, resulting in an attrition from approximately 3,500 to a final 2,171 students at the end of the first year and to 1,090 at the end of the second year.

Teachers generally stayed within the assigned teaching strategies as assessed by the Field Consultants during periodic unannounced observations. FSM and FSG teachers as a group were rated between "good" and "excellent" in this respect while TLM teachers as a group were rated between "fair" and "good." Every effort was made to maintain adherence and yet fairly represent the "real school" environment.

PART 3: DATA ANALYSES

From its inception, the emphasis of the Project was to determine, (1) the comparative effectiveness of the three teaching strategies and (2) the comparative effectiveness of the three language laboratory systems. From this analysis it was hoped that (3) a determination might be made of the optimum strategy-system combination. The Project retained Dr. Chauncy M. Dayton, a specialist in educational research and statistical analysis on the faculty of the University of Maryland, to oversee the task. The analyses were made at the Computer Science Center of the University of Maryland for both experimental years.

THE STATISTICAL PROGRAM

The statistical program utilized by Dr. Dayton was the Multivariate Analysis of Variance ("MANOVA") developed by the Biometric Laboratory of the University of Miami. Readers desiring a complete description of the program should refer to Multivariate Statistical Programs by D. J. Clyde, E. M. Cramer and R. J. Sherin, published by the Biometric Laboratory in 1966, pp. 20-41. An improved version of the program was used during the second year analysis.

In essence the Multivariate Analysis of Variance program performs analyses of variance, covariance and of regression, providing exact solutions in either orthogonal or non-orthogonal cases. Reanalyses may be done with varying criteria, covariates, contrasts and ordering.

Computer output on each strategy - laboratory system analyzed included (1) means and standard deviations on all pre-, mid- and post-measures; (2) the within cells correlations on each measure; (3) a test for linear dependency among the variables; (4) estimates of error effects; (5) an analysis of variance using Wilk's Lambda Criterion and Canonical Correlations with Rao's approximate F-test; and (6) analyses of covariance with as many as six covariates.

In the subsequent portions of the report, only data judged essential to interpretation by the reader is reproduced. The complete computer output totals several large volumes. Probabilities of occurrence are reported for all pertinent F-ratios. Since the program can be two-dimensional, sex was often used as a second factor. This permitted a view of the role of sex as an active factor in second language learning. In many cases a difference was pre-supposed but did not occur. This *per se*, is significant and is the very reason such tables are reported.

The basic unit of the analysis is the teacher (class) mean. Student and teacher data were rigorously checked before submission to the statistical analysis. Preliminary screening had eliminated incomplete observations on students. The computer program automatically reported any observations with insufficient data and deleted them from the computations.

Since the data was examined several times by the Multivariate Analysis of Variance Program to examine various facets, computer outputs changed slightly for each analysis. For this reason a representative examination, one which included the entire student population, was chosen for the reporting of "Means and Standard Deviations" rather than several reproductions of essentially identical data.

ANALYSIS OF SECONDARY OBJECTIVES

The secondary objectives (see p. 14, Objectives 3-7) of the research were evaluated at the Cooperative Research Center, West Chester State College by the Project Coordinator. Facilities included an IBM 1401 Computer system and a competent staff. Programs utilized were largely of the standard IBM type. A few were especially written for the Project by Dr. Martin Higgins and Mr. Wesley Fasnacht of West Chester State College, Mr. Russell Dusewicz of the State Department of Public Instruction, and Mr. Helmut Baranyi of the Project Staff.

ANALYSIS OF VARIANCE AND TUKEY MULTIPLE RANGE TESTS

Objectives 4, 5 and 6 of the study dealing with the comparison of student attitude indices, attitude shifts, and the relationship of various student and instructional measures to final achievement were first tested for significance with a one-way analysis of variance. This particular procedure was selected since the unit of analysis was the student group and there was considerable disproportionality on unequal numbers of students per treatment. If significant differences within the population were indicated by the analysis of variance, additional tests were employed to compare differences between pairs of means for significance.

Since there is some apprehension among statisticians as to the increasing likelihood of obtaining significant differences among groups by computing large numbers of $\underline{t}$ or Critical Range tests, the more conservative Tukey "A" multiple range test was usually employed. This test requires the ordering of group means and computation with a harmonic number of subjects. Considerable confidence can be attached to significance reported using this test.

CORRELATIONS AND MULTIPLE REGRESSION

To establish the relationship between such variables as age, grade, teacher proficiency, student attitude, intelligence and aptitude with student achievement in foreign language the correlation coefficient (r) was employed. It was also used to determine the interrelationships among the various foreign language skills and among all discrete experimental measures.

The computation was done on a 60 x 60 variable correlation program on an IBM 1401 computer. Levels of significance for correlation coefficients, two tailed test, are identified where applicable from a standard table of "Critical Values of the Correlation Coefficient" (after Fisher and Yates) at N-2 degrees of freedom.

Multiple correlation coefficients (R) also were computed to determine the best predictors of foreign language achievement. Statistical significance of reported multiple correlation coefficients was determined by computation of an F-ratio using the formula:

$$F = \left(\frac{R^2}{1-R^2} \right) \left(\frac{N-K-1}{K} \right)$$

where N is the number of observations and K is the number of predictors.

TABLE 5

EXPERIMENTAL MEASURES

ORIGINAL POPULATION

Pre-Experimental	Mid-Year	End-Year
1. Calif. Test Mental Mat.	6. MLA Coop. List.	12. MLA Coop. List.
2. Mod. Lang. Apt. Test	7. MLA Coop. Read.	13. MLA Coop. Read.
3. Cooperative F/G Test	8. MLA Coop. Spk.*	14. MLA Coop. Spk.*
4. MLA Coop. List.	9. MLA Coop. Write*	15. MLA Coop. Writ*
5. Student Opinion Scale (S.O.S.)	10. S.O.S.	16. S.O.S.
	11. List. Discrim.	17. Cooperative F/G

1965-66, 2,171 students

Fall 2nd Year	Mid-Year	Post-Experimental
18. MLA Coop. List.	21. MLA Coop. List.	24. MLA Coop. List.
19. MLA Coop. Read	22. MLA Coop. Read.	25. MLA Coop. Read.
		26. List. Discrim.
		27. MLA Coop. Spk.*
20. S.O.S.	23. S.O.S.	28. S.O.S.
		29. MLA Coop. Writ*
		30. Speech Prod.*

1966-67, 1,090 students

REPLICATION

Pre-Experimental	Mid-Year	Post-Experimental
1. Calif. Test Mental Mat.	5. MLA Coop. List.	8. MLA Coop. List.
2. Mod. Lang. Apt. Test	6. MLA Coop. Read.	9. MLA Coop. Read.
3. MLA Coop. List.		10. MLA Coop. Spk.*
4. S.O.S.	7. S.O.S.	11. S.O.S.
		12. MLA Coop. Writ*
		13. List. Discrim.
		14. Speech Prod.*

1966-67, 663 students

* = 10% random sample tested

SECTION III - RESULTS OF THE RESEARCH

PART 1: REPLICATION OF THE FIRST YEAR

The results of Project 5-0683, "An Assessment of Three Foreign Language Teaching Strategies Utilizing Three Language Laboratory Systems" were in essence that "traditional" classes did as well or better than "functional skills" classes on all measures, including the newer MLA Cooperative Classroom Tests, and that the language laboratory systems employed for two half-periods per week had no effect. Since these conclusions are not what had been anticipated by the profession, replication of the major portions of the experiment was of primary importance.

Accordingly, eighteen French and ten German classes undertook a replication of Level I. Teacher training and testing were repeated for the few new teachers involved. In the main, replication teachers were on-going Project teachers who were willing to begin with another class or teachers who could not continue with an original Project class for scheduling reasons but who were willing to begin again with a second class.

Measurement of the replicating students emulated the original classes but was somewhat narrower, concentrating on the listening, speaking, reading and writing skills. The 1939-41 Cooperative French and German Tests, originally used as both pre- and post-experimental "traditional" measures were dropped. As already mentioned, pre-experimental measures consisted of (1) the California Test of Mental Maturity, (2) the Modern Language Aptitude Test, and (3) the MLA Cooperative Classroom Listening Test in French or German. Post-experimental measures were (1) the MLA Cooperative Classroom Listening and (2) Reading Tests and (3) the Valette Listening Discrimination Test.

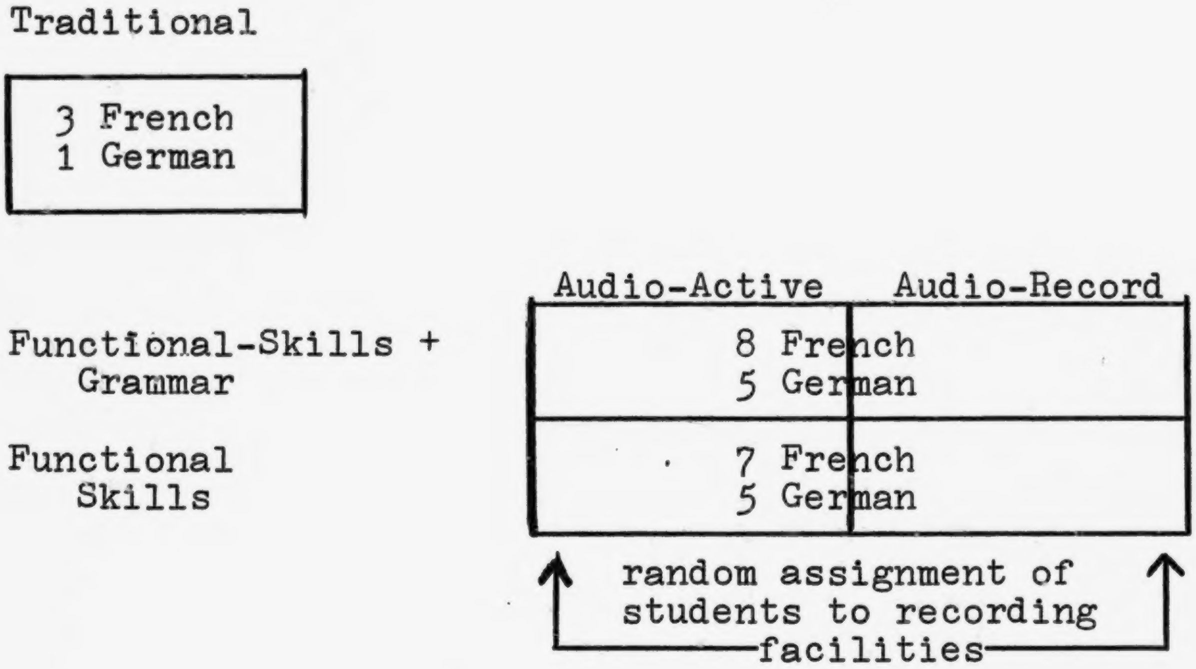
ASSIGNMENT OF REPLICATING CLASSES

Unlike the earlier Project 5-0683, the replicating students could be randomly assigned between the two types of language laboratory systems, Audio-Active (AA) and Audio-Active-Record (AR). No functional skills classes utilizing a classroom tape recorder only were included. Instead the "control" classes were the "traditional" classes with no systematic use of the tape recorder. The actual breakdown of replicating classes was as follows:

2

FIGURE 5

ASSIGNMENT OF REPLICATING CLASSES


Traditional
3 French
1 German
Audio-Active
Audio-Record
Functional-Skills + Grammar
8 French
5 German
Functional Skills
7 French
5 German
random assignment of students to recording facilities

The replication classes then, in essence, concentrated on (1) a contrast between the three teaching strategies and (2) a contrast of Audio-Active, Audio-Record and no language laboratory systems as measured on tests reflecting the "newer" philosophies of modern foreign language instruction.

COMPARISON OF ORIGINAL AND REPLICATING STUDENTS

Since replication is an attempt at duplication, a comparison was made of the replicating students with the original Project population. In theory, they should have had the same characteristics, permitting validation of the results of Project 5-0683. In actuality there did exist some significant differences between the two groups when compared directly on the pre-experimental measures.

Tables 6, 51 and 52 (Appendix D) show the comparison between the two groups on sub-parts and total of the pre-experimental California Test of Mental Maturity (Short Form). Significant differences existed between the two groups on the "Language IQ" portion of the test. In the original population German students did significantly better. In the replication the significance occurred in favor of the French students. Significant differences exist between original and replicating students in both languages.

On the "Non-Language I.Q." portion of this same test there are no differences each year between languages but a significant difference (105) between original and replicating French students (Table 51, Appendix D). The "Total IQ" reflects the significant differences found in the sub-tests (Table 52, Appendix D).

A significant difference (.001) also existed between original and replicating experimental French students on the Pre-experimental Modern Language Aptitude Test (Table 7). There was no significant difference between German groups the two years. The situation was reversed for the MLA Cooperative Classroom Listening Test with significant differences in German but not in French (Table 8). Since significant differences among groups on these pre-experimental measures existed, they were included as covariates on the multiple analysis of covariance upon which the experiment was evaluated. Post-experimental cell means and standard deviations are shown in Table 8.

TABLE 6

COMPARISONS OF POPULATION BY INTELLIGENCE

Pre-Experimental California Test of Mental Maturity (short form)

Language IQ

	N	Mean	S.D.	p.
1. Original French Students	1205	112.94	11.31	$<$.01
2. Original German Students	945	114.76	10.18	
3. Replicating French Students	397	115.26	10.47	$<$.01
4. Replicating German Students	242	112.10	11.55	

Source	df	Sm.Sq.	Mean Sq.	F
Between	3	3310.	1103.33	9.38**
Within	2785	327466.	117.58	

SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS

Tukey "A" Multiple Range Test

Group:		4	1	2	3
Mean:		112.10	112.94	114.76	115.26
4	112.10	------	.84	2.66**	3.16**
1	112.94	------	------	1.83**	2.32**
2	114.76	------	------	------	.50
3	115.26				

** p. $<$.01.

TABLE 7-A

COMPARISON OF ORIGINAL AND REPLICATING STUDENTS

MODERN LANGUAGE APTITUDE TEST

FRENCH

	N	Mean	S.D.
Original	1203	46.20	16.11
Replicators	397	49.72	18.05

Source	df	Sm.Sqs.	Mean Sq.	F
Between	1	3695.20	3695.20	13.40***
Within	1598	440843.20	275.87	

GERMAN

	N	Mean	S.D.
Original	945	46.04	16.55
Replicators	242	46.20	17.83

Source	df	Sm.Sqs.	Mean Sq.	F
Between	1	4.90	4.90	.02
Within	1185	335280.0	292.94	

*** p. $<$ .001.

TABLE 7-B

COMPARISON OF ORIGINAL & REPLICATING STUDENTS, PRE-EXPERIMENTAL COOPERATIVE CLASSROOM LISTENING COMPREHENSION TEST

FRENCH

	N	Mean	S.D.
Original	1201	9.66	3.72
Replicators	397	9.38	5.36

Source	df	Sm.Sqs.	Mean Sq.	F
Between	1	21.61	21.61	1.23
Within	1596	28028.32	17.56	

GERMAN

	N	Mean	S.D.
Original	945	10.82	3.95
Replicators	242	7.66	6.46

Source	df	Sm.Sqs.	Mean Sq.	F
Between	1	1927.73	1927.73	92.23**
Within	1185	24767.05	20.90	

** p. $<$ .01.

TABLE 8

REPLICATION POST-EXPERIMENTAL CELL MEANS AND STANDARD DEVIATIONS

FRENCH	List. Discrim.	LA List.	LA Read
1. TLM	41.03	13.83	17.02
	7.99	3.36	5.11
2. FSG-TR	31.53	11.00	14.12
	7.33	3.45	3.84
3. FSG-AA	46.86	14.88	15.19
	7.11	4.58	4.75
4. FSM-AA	47.89	14.50	16.43
	10.30	5.85	4.95
5. FSG-AR	46.96	15.68	16.54
	6.65	5.77	5.10
6. FSM-AR	47.02	15.42	16.29
	8.16	3.54	3.06

GERMAN	List. Discrim.	LA List.	LA Read
1. TLM	33.19	11.78	13.00
	6.58	3.25	2.91
2. FSG-AA	39.91	15.44	14.14
	6.84	5.10	4.11
3. FSM-AA	34.99	13.68	14.12
	7.43	5.78	4.68
4. FSG-AR	41.58	16.50	13.91
	7.62	4.10	3.88
5. FSM-AR	36.64	12.82	13.60
	6.97	2.63	3.89

ADHERENCE TO ASSIGNED STRATEGIES

Replicating teachers were visited and evaluated by the same criteria as regular Project teachers to evaluate their adherence to the assigned teaching strategy. The observers' ratings were analyzed in Tables9-1.1. The analysis shows that replicating teachers were judged "Excellent" to "Good" in their adherence to the assigned teaching strategy.

The area in which all three strategies seem to have deviated the most from expected norms was that of the proportion of class time spent in student pronunciation of the foreign language. In the four "traditional" classes both the teacher and student spoke the second language more than was expected. In the "functional skills" strategies the students did not speak as much as might have been expected but were still rated as "Good" to "Fair" in the amount of time spent in speech production.

TABLE 9

ADHERENCE TO STRATEGIES - "TRADITIONAL" - REPLICATION

Rating Scale	Ratings 1	2	3	4	5	Item Mean
1. Vocabulary drill	4	3	1	--	--	1.63
2. Translation of reading lesson	3	2	--	--	--	1.40
3. Grammar--formal analysis	11	4	--	--	--	1.27
4. Pronunciation--teacher--max. ¼ of class time	2	4	10	--	--	2.50
5. Pronunciation--student--max. ¼ of class time	--	3	8	5	--	3.13
6. Reading for total comprehension	4	2	2	--	--	1.75
7. Writing--free composition	1	2	1	--	--	2.00
8. Culture (refinement)	2	1	3	--	--	2.17
9. Use of tape recorder	--	--	--	--	--	0.00
10. Use of visual aids	2	3	2	--	--	2.00
	29	24	26	5	0	
					Overall Mean=	1.79

TABLE 10

ADHERENCE TO STRATEGY-"FUNCTIONAL SKILLS-GRAMMAR"-REPLICATION

			Ratings			Item
Rating Scale	1	2	3	4	5	Mean
1. Teacher speaks foreign language	30	8	3	--	--	1.34
2. Students speak foreign language	3	26	12	--	--	2.22
3. Grammar: Descriptive; use before rules	29	5	1	--	--	1.20
4. Speaking only what was listened to	37	2	1	--	--	1.10
5. Reading as direct communication	24	5	--	--	--	1.17
6. Reading only what was listened to and spoken	27	1	1	--	--	1.10
7. Writing only what was listened to, spoken and read	20	--	--	1	--	1.14
8. Language as a cultural behavior pattern	41	--	--	--	--	1.00
9. Testing as demonstration of functional proficiency	15	4	--	--	--	1.21
10. Average use of tapes--ten minutes per day	15	7	1	1	1	1.64
11. Average pronunciation drill--3-5 minutes per day	8	11	4	3	--	2.08
12. Vocabulary taught in context only	40	1	--	--	--	1.02
	289	70	23	5	1	
						Overall Mean=1.35

TABLE 11

ADHERENCE TO STRATEGY-"FUNCTIONAL SKILLS METHOD"-REPLICATION

			Ratings			Item
Rating Scale	1	2	3	4	5	Mean
1. Teacher speaks foreign language	23	7	2	--	--	1.34
2. Students speak foreign language	4	12	16	--	--	2.38
3. Grammar: Subsidiary to functional skills	17	9	1	--	--	1.41
4. Speaking only what was listened to	29	4	--	--	--	1.12
5. Reading as direct communication	24	3	1	--	--	1.18
6. Reading only what was listened to and spoken	25	2	1	--	--	1.14
7. Writing only what was listened to, spoken and read	24	--	--	--	--	1.00
8. Language as a cultural behavior pattern	31	--	--	--	--	1.00
9. Testing as demonstration of functional proficiency	14	3	--	--	--	1.18
10. Average use of tapes--ten minutes per day	12	4	7	--	--	1.78
11. Average pronunciation drill--3-5 minutes per day	11	6	8	--	--	1.88
12. Vocabulary taught in context only	31	--	--	--	--	1.00
	245	50	36	0	0	
						Overall Mean=1.37

Replicating classes were rated by the same standards--and with the same irregularities of observation and activities--as the original Project classes. It seems desirable to determine if the replication does indeed reflect the original in terms of adherence to treatment. Unfortunately, the Observation Reports do not lend themselves to precise tests of statistical differences.

A less rigorous test, comparing the relative proportions for both groups of "Excellent-Good" to "Fair-Poor-Very Poor" ratings was made by the use of chi-square. The hypothosis was advanced that the proportion of "high" and "low" ratings should be the same within a particular strategy for both years. Data and results are shown in Table 12.

TABLE 12

COMPARISON OF ORIGINAL AND REPLICATING TEACHER ADHERENCE TO STRATEGY

"TRADITIONAL"

Observers' Ratings	Original	Replicating
Excellent, Good	191	53
Fair, Poor, Very Poor	105	32

Chi Square = .13 at 1 df, not significant

"FUNCTIONAL SKILLS-GRAMMAR"

Excellent, Good	951	359
Fair, Poor, Very Poor	208	29

Chi Square = 24.57 at 1 df, p. < .001.

"FUNCTIONAL SKILLS METHOD"

Excellent, Good	778	295
Fair, Poor, Very Poor	111	36

Chi Square - .58 at 1 df, not significant

"Traditional" and "functional skills method" classes seem to have been rated about the same during both first years of instruction. "Functional skills-grammar" teachers were rated as adhering more closely to the intent of the research (p. < .001) during the replication than in the original experimental classes. Differences in instruments and criteria preclude analysis across strategies.

In terms of teacher adherence to assigned techniques, the Project Staff felt that the replication was a fair representation of the original experimental classes. In some ways it may have been better since most replicating teachers were highly interested "original" teachers who undertook a new class within the framework of the experiment.

RESULTS OF THE REPLICATION

Objective 1: To determine which of three foreign language teaching strategies is most effective. . . and . . .

Objective 2: To determine which of three language laboratory systems is best suited economically and instructionally. . .

The analyses of achievement in foreign language skills among the twenty-eight replicating classes confirm the earlier conclusions of Project 5-0683 that there existed significant differences between teaching strategies on audio-lingual skills and that the type of language laboratory employed had no effect on student achievement. The analyses of covariance on the final MLA *Cooperative Classroom Listening* and *Reading Tests* and the Valette *Listening Discrimination Tests* by strategy and system are shown in Tables 13 through 17.

The few contrasts to achieve significance occur in French on the Valette *Listening Discrimination Test* (Table 17). An attempt was made to obtain speaking and writing measures on a ten percent randomly selected sample of the replicating classes. However, due to the small number of actual individuals for whom data was available, the researchers chose not to include this sample in the analysis.

TABLE 13

ANALYSIS OF COVARIANCE BY STRATEGY

Criteria: Final LB Listening Test

Covariates:
1. Language IQ
2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test
4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test
6. Mid-yr. List. Discrim. Test

CONTRAST	REPLICATING FRENCH I (18 classes)	REPLICATING GERMAN I (10 classes)
	F-ratio	F-ratio
1. FSG vs TLM	.303	.108
2. FSM vs TLM	2.742	.000
3. FSG vs FSM	.288	.126
4. FSG vs FSM at AA	.105	.275
5. FSG vs FSM at AR	.245	.014

TABLE 14

ANALYSIS OF COVARIANCE BY STRATEGY

Criteria: Final LB Reading Test

Covariates:
1. Language IQ
2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test
4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test
6. Mid.yr. List. Discrim. Test

CONTRAST	REPLICATING FRENCH I (18 classes)	REPLICATING GERMAN I (10 classes)
	F-ratio	F-ratio
1. FSG vs TLM	.116	2.617
2. FSM vs TLM	.000	4.454
3. FSG vs FSM	.300	.316
4. FSG vs FSM at AA	.953	1.129
5. FSG vs FSM at AR	.114	.016

TABLE 15

ANALYSIS OF COVARIANCE BY LABORATORY TYPE

Criteria: Final LB Listening Test

Covariates:

1. Language IQ
2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test
4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test
6. Mid-yr. List. Discrim. Test

CONTRAST	REPLICATING FRENCH I (18 classes)	REPLICATING GERMAN I (10 classes)
	F-ratio	F-ratio
1. AA vs AR at FSG	.323	.552
2. AA vs AR at FSM	.099	.377
3. AA vs AR	.080	.189

TABLE 16

ANALYSIS OF COVARIANCE BY LABORATORY TYPE

Criteria: Final LB Reading Test

Covariates:

1. Language IQ
2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test
4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test
6. Mid-yr. List. Discrim. Test

CONTRAST	REPLICATING FRENCH I (18 classes)	REPLICATING GERMAN I (10 classes)
	F-ratio	F-ratio
1. AA vs AR at FSG	1.323	1.559
2. AA vs AR at FSM	.080	1.834
3. AA vs AR	.337	4.230

TABLE 17

ANALYSIS OF COVARIANCE BY STRATEGY AND SYSTEM

Criteria: Final Listening Discrimination Test

Covariates:

1. Language IQ
2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test
4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test
6. Mid-yr. List. Discrim. Test

CONTRAST	REPLICATING FRENCH I (18 classes)		REPLICATING GERMAN I (10 classes)	
	F-ratio	p. <	F-ratio	p. <
1. FSG vs TLM	.907	-----	.084	-----
2. FSM vs TLM	29.398	.01 FSM > TLM	.123	-----
3. FSG vs FSM	7.258	.05 FSG > FSM	.261	-----
4. FSG vs FSM at AA	1.173	-----	.106	-----
5. FSG vs FSM at AR	.866	-----	.070	-----
6. AA vs AR at FSG	1.074	-----	.240	-----
7. AA vs AR at FSM	1.343	-----	.432	-----
8. AA vs AR	3.762	-----	.432	-----

Objective 6: *To determine the strengths and weaknesses of selected commercial programs*, had led to the discovery of significant achievement differences between students using the *ALM* text and the Holt, Rinehart and Winston *Ecouter et Parler*--*Verstehen und Sprechen* at the end of both Level I and Level II. This warrented checking within the replication population. The results, shown in Table 18, indicate that students utilizing the Holt Materials scored significantly higher on the MLA *Cooperative Classroom Listening Test* but not on the *Reading Test*.

TABLE 18

COMPARISON OF ACHIEVEMENT BY TEXT,

REPLICATING FUNCTIONAL SKILLS STUDENTS

	Text I			Text II		
	Mean	S.D.		Mean	S.D.	C.R.
French, N=240			N=100			
1. Final LA List. Test	14.64	5.12		16.40	6.13	2.53*
2. Final LA Read. Test	15.82	4.65		16.20	5.94	.57
German, N=141			N=74			
1. Final LA List. Test	14.24	4.92		16.22	7.34	2.08*
2. Final LA Read. Test	13.73	4.16		14.78	5.04	1.56

* p.$<$.05.

Objective 7: *To identify teacher factors related to student achievement*.

Project 5-0683 had concluded that a hypothesized relationship between teacher proficiency and preparation measures and class achievement did not exist after one year of classroom instruction. Confirmation or refutation of this conclusion was considered of great importance.

The scores of replicating teachers on the MLA *Proficiency Test for Teachers and Advanced Students* were again correlated with the mean achievement of their classes on the Valette *Listening Discrimination Test*, the four skills portions of the MLA *Cooperative Classroom Tests* and the class mean *Opinion Scale* index. The correlation coefficients are reported in Table 19.

TABLE 19

CORRELATIONS BETWEEN TEACHER PROFICIENCY AND CLASS ACHIEVEMENT AFTER TWO YEARS

Correlation Coefficients

FRENCH, N=18

Teacher Proficiency Score	List. Disc.	LB List.	LB Read.	LB Speak	LB Write	Opinion Scale
			Class Mean			
1. Listen	.207	-.158	-.007	-.517*	-.212	-.232
2. Speak	.407	.035	-.223	-.429	-.528*	-.363
3. Read	.471*	.286	.014	-.554*	-.294	-.463
4. Write	.279	-.002	.080	-.476*	-.198	-.278
5. Ap. Ling.	.279	-.107	-.377	-.239	-.476*	-.035
6. Cult. & Civ.	.002	-.088	-.232	-.311	-.151	-.548*
7. Prof. Prep.	.282	-.016	-.288	-.061	-.193	-.214

GERMAN, N=8

Teacher Proficiency Score	List. Disc.	LB List.	LB Read	LB Speak	LB Write	Opinion Scale
1. Listen	-.101	.305	.309	.081	.344	-.294
2. Speak	-.056	.735*	.430	-.139	.084	-.063
3. Read	-.266	.690	.481	-.416	-.178	-.164
4. Write	-.216	.704	.456	-.233	.010	-.243
5. Ap. Ling.	-.152	.506	.291	-.490	-.555	.106
6. Cult.& Civ	-.272	-.136	-.102	-.366	-.566	-.058
7. Prof.Prep.	.796*	-.291	-.409	-.053	-.060	.707*

*$p < .05$.

The few classes involved, especially in German, make the values of the correlation coefficient required to be significantly greater than zero quite high. Enough French classes (N=18) were compared to permit reasonable assumptions of probability. Few correlation coefficients reached the required values to become significant. Those which were significant reached the .05 level. Of the seven significant correlation coefficients in French, six are negative, repeating a pattern reported in the final report of the first year of this study (Project 5-0683). Thus, there seems again little direct relationship between teacher proficiency and class achievement as measured on standardized tests. Teacher proficiency also seems to have had no relationship to the overall attitude of the class toward foreign language study.

SUMMARY

The replication phase of Project 7-0133 successfully completed the same experiment as original Project classes, adhering significantly more closely to established instructional guidelines. The conclusions of the replication fully support the reported conclusions of Project 5-0683 (the first year of this study).

PART 2: RESULTS OF THE SECOND YEAR OF EXPERIMENTAL INSTRUCTION

The second year of the experiment consisted of a slightly more narrow focus with the elimination of the older 1939-41 Cooperative Tests and the reduction of the number of objectives. "Traditional" classes did significantly better on the grammar, reading and vocabulary measures of the older Cooperative Tests at the end of one year of instruction in both French and German. Since these tests were especially reprinted for the experiment and are no longer available to the profession, during the second year evaluation was mainly predicted on the new MLA Cooperative Classroom Tests.

The evaluation of teaching strategies and language laboratory systems and the determination of an optimum strategy-system combination (Objectives 1 and 2) depended upon an analysis of covariance utilizing from four to six measures known to be highly related to the criterion as covariates. This multivariate analysis was described more fully in earlier sections of the report.

Objective 1: To determine which of three foreign language teaching strategies is most effective in achieving each of the four foreign language objectives, i.e. listening comprehension, speaking fluency, reading and writing.

The analysis of covariance indicates no significant differences after two years of instruction among the three teaching strategies in either listening comprehension (Table 21) or listening discrimination (Table 22). A ten percent random sample of classes who took the MLA Cooperative Speaking Test also indicates that no advantage existed for any strategy (Table 23).

A smaller sample of students, twenty-seven individuals from twelve French II classes and thirty-six from sixteen German II classes, took the Valette Speech Production Tests. These tests, concentrating on the individual's production of individual sounds of French and German, indicate some significant differences in favor of the "Functional Skills" (FSM and FSG) classes (Table 24). The small sample and the non-validation of the test itself, prohibit firm conclusions based upon this data.

"Traditional" classes achieved significantly higher in reading than the "Functional Skills Method" classes (Table 25). This significant difference occurred only in French at the end of the first year but in both French and German after

TABLE 20

POST EXPERIMENTAL CELL MEANS AND STANDARD DEVIATIONS

French	List.Discrim.	LA List.	LA Spk.	LA Read.	LA Write
1. TLM	48.79	21.01	36.36	25.53	53.63
	7.18	5.73	7.36	8.61	23.57
2. FSG-TR	45.00	23.67	33.33	26.91	49.16
	7.21	7.40	2.58	9.56	31.26
3. FSM-TR	52.34	21.12	43.50	19.80	43.00
	6.06	6.41	5.22	7.39	8.80
4. FSG-AA	49.33	22.84	31.70	19.91	30.22
	6.74	6.30	7.95	7.17	14.66
5. FSM-AA	48.04	21.44	34.25	20.94	45.00
	9.25	9.91	3.70	6.85	12.50
6. FSG-AR	48.89	19.51	30.00	19.57	37.06
	7.85	6.80	9.50	6.62	18.78
7. FSM-AR	47.38	23.25	32.33	22.25	48.50
	8.20	5.30	5.08	5.99	14.77
German					
1. TLM	45.69	19.38	39.57	23.46	55.73
	8.18	7.43	6.36	9.10	15.92
2. FSG-TR	45.36	19.06	37.16	16.01	51.41
	7.17	6.98	9.08	6.34	14.54
3. FSM-TR	44.79	21.52	36.00	18.40	53.33
	10.50	5.32	8.48	6.38	28.08
4. FSG-AA	47.62	14.99	31.60	15.47	34.91
	6.04	6.46	2.64	4.49	13.30
5. FSM-AA	47.50	19.03	31.48	15.65	43.06
	9.70	6.59	11.22	5.08	18.42
6. FSG-AR	43.64	21.40	36.60	17.04	45.10
	7.69	6.33	9.28	5.28	22.78
7. FSM-AR	38.87	18.83	34.62	17.15	38.37
	8.79	8.30	12.57	6.89	23.81

TABLE 21

ANALYSIS OF COVARIANCE BY STRATEGY

Criteria: Final LB Listening Test

Covariates:
1. Language IQ
2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test
4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test
6. Mid-yr. List. Discrim. Test

CONTRAST	FRENCH (24 classes)		GERMAN (25 classes)	
	F-ratio	p.<	F-ratio	p.<
1. FSG vs TLM	.724	.411	.003	.960
2. FSM vs TLM	.132	.723	2.581	.130
3. FSG vs FSM	.511	.489	.487	.497

TABLE 22

Criteria: Final Listening Discrimination Test

Covariates:
1. Language IQ
2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test
4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test
6. Mid-yr. List. Discrim. Test

CONTRAST	FRENCH (24 classes)		GERMAN (25 classes)	
	F-ratio	p.<	F-ratio	p.<
1. FSG vs TLM	.970	.344	.052	.824
2. FSM vs TLM	.594	.456	.008	.932
3. FSG vs FSM	.494	.496	.057	.815

two years. The differences in reading (Table 25) at the end of the second year between "Traditional" and "Functional Skills + Grammar" strategies is not significant.

On the MLA Cooperative Writing Test, an instrument permitting no translation, there existed no significant differences among the ten percent sample of the three strategies. It had existed at the conclusion of Level I in French in favor of the "Traditional" classes (Table 26).

TABLE 23

ANALYSIS OF COVARIANCE BY STRATEGY

TEN PERCENT RANDOM SAMPLE

Criteria: Final LB Speaking Test

Covariates:
1. Language IQ
2. Mod. Lang. Aptitude Test
3. Coop. Achievement Test
4. Pre-Exp. LA List. Test

CONTRAST	FRENCH (21 classes)		GERMAN (21 classes)	
	F-ratio	p. <	F-ratio	p. <
1. FSG vs TLM	.434	.527	.090	.770
2. FSM vs TLM	.515	.491	.425	.531
3. FSG vs FSM	.300	.597	.648	.442

TABLE 24

ANALYSIS OF COVARIANCE BY STRATEGY

TEN PERCENT RANDOM SAMPLE

Criteria: Valette Speech Production Test

Covariates:
1. Language IQ
2. Mod. Lang. Aptitude Test
3. Coop. Achievement Test
4. Pre-Exp. LA List. Test

CONTRAST	FRENCH (12 classes) N=27		GERMAN (16 classes) N=36	
	F-ratio	p. <	F-ratio	p. <
1. FSG vs TLM	6.076	.133	26.533	.004**FSG >
2. FSM vs TLM	21.276	.044 FSM >	.173	.695
3. FSG vs FSM	.926	.437	8.478	.033**FSG >
Reanalysis				
2b FSM vs TLM	27.970	.034 FSM >		

TABLE 25

ANALYSIS OF COVARIANCE BY STRATEGY

Criteria: Final LB Reading Test

Covariates:
1. Language IQ   2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test   4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test   6. Mid-yr. List. Discrim. Test

CONTRAST	FRENCH (24 classes)		GERMAN (25 classes)	
	F-ratio	p. <	F-ratio	p. <
1. FSG vs TLM	.112	.744	1.717	.211
2. FSM vs TLM	8.833	.012** FSM<TLM	4.543	.051* FSM<TLM
3. FSG vs FSM	.527	.482	.026	.874

TABLE 26

ANALYSIS OF COVARIANCE BY STRATEGY

TEN PERCENT RANDOM SAMPLE

Criteria: Final LB Writing Test

Covariates:
1. Language IQ   3. Cooperative Achievement Test
2. Mod. Lang. Apt. Test   4. Pre-Exp. LA List. Test

CONTRAST	FRENCH (21 classes)		GERMAN (21 classes)	
	F-ratio	p. <	F-ratio	p. <
1. FSG vs TLM	.018	.895	.333	.577
2. FSM vs TLM	2.647	.135	.113	.744
3. FSG vs FSM	.186	.676	.027	.873

In summary, after two years of instruction, no significant differences existed among the three teaching strategies in the listening, speaking and writing skills as measured by the MLA Cooperative Classroom Tests. Significant differences occurred on the Reading Test in favor of the "Traditional" classes versus the "Functional Skills" strategies in both French and German.

Objective 2: To determine which of three language laboratory systems is best suited economically and instructionally, to the development of pronunciation and structural accuracy.

The objective, as stated, is concerned most with the influence of the various language laboratory systems on the audio-lingual skills. The known high correlation of these skills with reading warranted its inclusion in the contrastive analysis.

Table 27 indicates no significant difference on the Listening Test among classes utilizing only a classroom tape recorder daily and those receiving additional practice in language laboratories twice weekly, either audio-active or audio-record. No significant differences exist among the same groups on the Valette Listening Discrimination Test (Table 28).

No significant differences exist among the various laboratory types as measured by the final MLA Speaking Test (Table 29). On the Valette Speech Production Test (Table 30) a significant difference occurred in favor of the classroom tape recorder over both language laboratory systems combined in German. The limitations of this untried test and the small sample size prevent generalization.

On the final MLA Reading Test in French several significant differences existed, audio-active greater than audio-record overall ($AA > AR$, Table 31) and the tape recorder classes achieving better than both language laboratory types in the "Functional Skills + Grammar" strategy. The audio-active laboratory classes did better than tape recorder classes in the "Functional Skills Method."

These differences occurred only in French with its less phonetic orthography and not in German. They are unsupported by commensurate significant differences in the audio-lingual skills.

TABLE 27

ANALYSIS OF COVARIANCE, TAPE RECORDER vs LANGUAGE LABORATORY SYSTEMS

Criteria: Final LB Listening Test

Covariates:
1. Language IQ
2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test
4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test
6. Mid-yr. List. Discrim. Test

CONTRAST	FRENCH (24 classes)		GERMAN (25 classes)	
	F-ratio	p.<	F-ratio	p.<
1. TR vs AA	.696	.421	.002	.969
2. TR vs AR	.346	.567	1.650	.220
3. AA vs AR	.365	.557	.002	.962
4. TR vs AA at FSG	.022	.884	.041	.842
5. TR vs AR at FSG	.392	.543	.071	.793
6. TR vs AA at FSM	.828	.381	.232	.638
7. TR vs AR at FSM	.052	.823	2.293	.152
8. AA vs AR at FSG	.644	.438	.052	.823
9. AA vs AR at FSM	.132	.723	2.297	.152

TABLE 28

ANALYSIS OF COVARIANCE, TAPE RECORDER vs LANGUAGE LABORATORY SYSTEMS

Criteria: Final Listening Discrimination Test

Covariates:
1. Language IQ
2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test
4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test
6. Mid-yr. List. Discrim. Test

CONTRAST	FRENCH (24 classes)		GERMAN (25 classes)	
	F-ratio	p.<	F-ratio	p.<
1. TR vs AA	.090	.769	.263	.616
2. TR vs AR	.250	.626	.018	.896
3. AA vs AR	.210	.655	1.135	.305
4. TR vs AA at FSG	2.018	.181	.000	.997
5. TR vs AR at FSG	2.778	.121	1.128	.306
6. TR vs AA at FSM	1.636	.225	.301	.592
7. TR vs AR at FSM	2.074	.175	.021	.886
8. AA vs AR at FSG	.007	.933	1.023	.329
9. AA vs AR at FSM	.144	.711	.151	.704

TABLE 29

ANALYSIS OF COVARIANCE BY LABORATORY SYSTEM

TEN PERCENT RANDOM SAMPLE

Criteria: Final LB Speaking Test

Covariates:
1. Language IQ
2. Mod. Lang. Aptitude Test
3. Cooperative Achievement Test
4. Pre-Exp. LA List. Test

CONTRAST	FRENCH (21 classes)		GERMAN (21 classes)	
	F-ratio	p. <	F-ratio	p. <
1. TR vs AA	.395	.545	.013	.912
2. TR vs AR	.860	.378	.208	.659
3. AA vs AR	.245	.632	.265	.619

TABLE 30

ANALYSIS OF COVARIANCE BY LABORATORY SYSTEM

TEN PERCENT RANDOM SAMPLE

Criteria: Valette Speech Production Test

Covariates:
1. Language IQ
2. Mod. Lang. Aptitude Test
3. Cooperative Achievement Test
4. Pre-Exp. LA List. Test

CONTRAST	FRENCH (13 classes) N=27		GERMAN (16 classes) N=36	
	F-ratio	p. <	F-ratio	p. <
1. TR vs AA	.492	.556	1.226	.319
2. TR vs AR	.194	.703	.438	.537
3. AA vs AR	5.184	.151	1.837	.233
4. TR vs AA+AR			6.452	.052* TR<

TABLE 31

ANALYSIS OF COVARIANCE, TAPE RECORDER vs LANGUAGE LABORATORY SYSTEMS

Criteria: Final LB Reading Test

Covariates:
1. Language IQ
2. Mod. Lang. Apt. Test
3. Pre-Exp. LA List. Test
4. Pre-Exp. Coop. Test
5. Mid-yr. LB Read Test
6. Mid-yr. List. Discrim. Test

CONTRAST	FRENCH (24 classes)		GERMAN (25 classes)	
	F-ratio	p. <	F-ratio	p. <
1. TR vs AA	.000	.986	1.460	.247
2. TR vs AR	.452	.514	.703	.416
3. AA vs AR	5.599	.036*AA > AR	1.319	.270
4. TR vs AA at FSG	5.451	.038* TR > AR	.164	.692
5. TR vs AR at FSG	13.043	.004**TR > AR	.718	.411
6. TR vs AA at FSM	12.973	.004**TR < AA	1.848	.196
7. TR vs AR at FSM	.896	.363	.289	.599
8. AA vs AR at FSG	3.998	.069	1.434	.251
9. AA vs AR at FSM	.656	.434	.732	.407

Objective 3: To determine which variable, or combination of variables--I.Q., total gradepoint average, and appropriate prognostic test--best predicts student achievement in foreign languages.

At the end of Level I, multiple regression equations and multiple correlation coefficients were developed on French and German students. The best overall predictors of success in Level I were found to be (1) the Modern Language Aptitude Test, (2) the pre-experimental Listening Test and (3) the Language I.Q. The preceding English or Social Studies grade appeared in some equations. Multiple correlation coefficients were significant at the .01 level except for 11th graders where they only reached the .05 level of confidence.

In Project 7-0133, equations and coefficients were developed using pre-experimental measures to indicate probable success in foreign language achievement over a two year period. These are reported in Table .

The most consistent predictors of achievement in foreign language skills were (1) the Modern Language Aptitude Test and overall scholastic success as indicated by the student's preceding (2) English grade and (3) Social Studies grade. Language I.Q. and the pre-experimental Listening Test--both found to be the best predictors of success for Level I--were not as important in predicting achievement over a two-year period.

The actual weight of each predictor with reference to a specific foreign language behavior can be seen in the equations of Table 32. The importance of preceding academic marks may well be indicative of overall student motivation toward learning within the school environment, regardless of the subject matter involved. No motivation measures were taken of the experimental students.

TABLE 32

MULTIPLE REGRESSION EQUATIONS, LEVEL II

1. Listening Test, Form LB (French) = .20 Lang. I.Q. + 3.83 MLAT + 3.95 Eng. Grade - 10.67
R = .79, p.< .01.
(German) = .79 Pre-exp. List. Test + 1.93 MLAT + .31 Eng. Grade
+ 5.89. R = .51, p.< .01.

2. Speaking Test, Form LB (French) = .20 MLAT + 3.66 Eng. Grade + 4.00 Soc. Studies Grade
+ 1.44. R = .65, p.< .01.
(German) = .56 Lang. I.Q. + .24 MLAT + 2.59 Soc. Studies Grade
- 47.32. R = .65, p.< .01.

3. Reading Test, Form LB (French) = .32 MLAT + 4.41 Eng. Grade + 4.45 Soc. Studies Grade
- 19.23. R = .84, p.< .01.
(German) = .66 Pre-exper. List. Test + .16 MLAT - .11 Eng. Grade
+ 6.08. R = .53, p.< .01.

4. Writing Test, Form LB (French) = .83 MLAT + 11.36 Eng. Grade + 12.83 Soc. Studies Grade
- 73.09. R = .89, p.< .01.
(German) = .50 MLAT + 3.43 Eng. Grade + 10.72 Soc. Studies Grade
- 17.89. R = .62, p.< .01.

Objective 4: To identify and compare student attitudes toward each of the teaching strategies and language laboratory systems.

The assessment of student attitude was based primarily on an eighteen item semantic differential scale administered in various forms three times each year. The secondary assessment was based upon a personal interview with a ten percent randomly selected sample of each Project class at the close of the second year of French or German instruction.

The Student Opinion Scale (S.O.S.) asked each student to respond to . . . "your impression about the study of French (or German) this year." Students marked from 1 to 7 on eighteen sets of polar adjectives. The Scale is reproduced in Appendix F.

After key punching, each Student Opinion Scale was automatically scored by computer and analyses of variance computed between students in varying treatments. If significance existed among various groups, Tukey "A" tests were applied to determine the probability of significant differences between particular groups.

Project 5-0683 had indicated a highly significant initial difference in student opinion between males and females in both French and German and between males studying French and males in German. There was a significant decline in student opinion from September to January to June. The Opinion Scale correlated highly with other measures, both of attitude or expectation and of achievement. Project 7-0133 sought to determine if these significant attitude shifts would continue during the second year of foreign language study.

CONTINUING VERSUS NON-CONTINUING STUDENTS

The possibility existed that an initial difference in a student's attitude or opinion about foreign language study might have influenced the length of study. To assess this possibility, a comparison was made of students who completed the two year instructional phase of the experiment and those who left the Project population (Tables 33 and 34).

Since it was impossible to determine the precise reason for each one of the sixteen hundred students "lost" over the two-year period, the Non-Continuing groups contain not only true "drop-outs"--students who by choice terminated foreign language study after one year--but also students who transfered from Project classes or for whom some item of data was not obtained in Level I. The thirty students who began the second year but were dropped from the experiment due to missing data before finishing French or German II were eliminated before the analysis of variance was computed.

TABLE 33

STUDENT OPINION CHANGES

CONTINUING vs NON-CONTINUING STUDENTS

At the end of one year of instruction

Pre-Experimental	N	Mean	S.D.
1. French, non-continuing	1017	5.36	.76
2. French, continuing	372	5.43	.70
3. German, non-continuing	584	5.39	.70
4. German, continuing	456	5.43	.66
Post-Experimental			
5. French, non-continuing	1017	4.81	1.17
6. French, continuing	372	5.19	.98
7. German, non-continuing	584	4.83	1.10
8. German, continuing	456	5.31	.91

ANALYSIS OF VARIANCE

Source	df	Sm.Sqs.	Mean Sq.	F
Between	7	329.71	47.101	57.61
Within	4850	3965.37	.817	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Groups:	5. 4.81	7. 4.83	6. 5.19	8. 5.31	1. 5.36	3. 5.39	2. 5.43	4. 5.44
5. 4.81	----	.02	.38**	.50**	.55**	.58**	.62**	.63**
7. 4.83	----	----	.36**	.48**	.53**	.56**	.60**	.61**
6. 5.19	----	----	----	.12*	.17**	.20**	.24**	.25**
8. 5.31	----	----	----	----	.05	.08	.12	.13
7. 5.36	----	----	----	----	----	.03	.07	.08
3. 5.39	----	----	----	----	----	----	.04	.05
2. 5.43	----	----	----	----	----	----	----	.01
4. 5.44	----	----	----	----	----	----	----	----

* $p. < .05$, ** $p. < .01$.

TABLE 34

OPINION DIFFERENCES, CONTINUING vs. NON-CONTINUING STUDENTS

(7 point scale)

	Students who completed only 1 yr. F.L.			Student who continued into 2nd yr. of F.L.			Critical Ratio	Significance of Difference
	N	Mean	S.D.	N	Mean	S.D.		
Pre-Instructional								
French:	1017	5.36	.76	372	5.43	.70	1.49	---
German:	584	5.38	.69	456	5.43	.66	1.13	---
Post-Instructional								
French:	1017	4.81	1.11	372	5.19	.98	6.22	.001
German:	584	4.82	1.09	456	5.31	.91	7.68	.001

The data reported in the accompanying tables indicates that no significant initial differences existed between continuing and non-continuing students. As expected, all student opinion measures shifted downward at the close of the first year of instruction. This overall shift was more marked but not significantly higher for German students. The attitude indices for non-continuing students contrasted highly to those of continuing students at the end of one year of foreign language study.

It is, therefore, impossible to utilize student opinion about foreign language study as an indication of later motivation to continue into Level II. Apparently all students have equal aspirations as they undertake foreign language study. Attitudes at the end of the first year of study are significantly different between those students who continue into Level II and those who discontinue foreign language study.

OVERALL OPINION SHIFTS

Student opinion about foreign language study declined throughout the two year instructional period. Table 35 shows that an initial mean Opinion Scale Index of 5.43 existed for both French and German students. This index declined significantly to 5.19 and 5.31 by the end of the first year. No resurgence of opinion occurred over the summer--the end of the first year and the fall of the second year indexes are very close. Attitude declined steadily throughout the second year (Table 35).

Among students who continued in foreign language study, no significant differences occurred between French and German population (Table 36). Significant differences had existed between the two in Level I. Apparently those male students with significantly lower attitude indexes in French discontinued language study.

TABLE 35

STUDENT OPINION CHANGES

ENTIRE EXPERIMENTAL POPULATION, TWO-YEAR PERIOD

7 Point Scale; 1=low, 7=high

Group	N	Mean	S.D.	p.<
1. French, Pre-Exper.	372	5.43	.70	n.s.
2. German, Pre-Exper.	456	5.43	.66	
3. French, End 1st yr.	372	5.19	.98	n.s.
4. German, End 1st yr.	456	5.31	.91	
5. French, Fall 2nd yr.	372	5.15	.94	n.s.
6. German, Fall 2nd yr.	456	5.19	.90	
7. French, Mid 2nd yr.	372	4.87	.96	n.s.
8. German, Mid 2nd yr.	456	4.97	1.03	
9. French, End 2nd yr.	372	4.81	1.06	n.s.
10. German, End 2nd yr.	456	4.94	1.05	

Source	df	Sm.Sq.	Mean Sq.	F
Between	9	184.71	20.52	23.85**
Within	4130	3558.72	.86	

SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS

Tukey "A" Multiple Range Test

Group:	9	7	10	8	5	6	3	4	1	2
Mean:	4.81	4.87	4.94	4.97	5.15	5.19	5.19	5.31	5.43	5.43
9. 4.81	----	.06	.13	.16	.34**	.38**	.38**	.50**	.62**	.62**
7. 4.87	----	----	.07	.10	.28**	.32**	.32**	.44**	.56**	.56**
10. 4.94	----	----	----	.03	.21**	.25**	.25**	.37**	.49**	.49**
8. 4.97	----	----	----	----	.18**	.22**	.22**	.34**	.46**	.46**
5. 5.15	----	----	----	----	----	.04	.04	.16	.28**	.28**
6. 5.19	----	----	----	----	----	----	.00	.12	.24**	.24**
3. 5.19	----	----	----	----	----	----	----	.12	.24**	.24**
4. 5.31	----	----	----	----	----	----	----	----	.12	.12
1. 5.43	----	----	----	----	----	----	----	----	----	.00
2. 5.43										

* p.< .05, ** p.< .01.

TABLE 36

STUDENT OPINION CHANGES

French vs German, Two-Year Period

Group	N	Mean	S.D.
1. French, Pre-experimental	372	5.43	.70
2. German, Pre-experimental	456	5.44	.66
3. French, End 1st year	372	5.20	.98
4. German, End 1st year	456	5.31	.91
5. French, Fall 2nd year	372	5.15	.94
6. German, Fall 2nd year	456	5.19	.90
7. French, Mid 2nd year	372	4.87	.96
8. German, Mid 2nd year	456	4.97	1.03
9. French, End 2nd year	372	4.81	1.06
10. German, End 2nd year	456	4.94	1.05

ANALYSIS OF VARIANCE

Source	df	Sm.Sqs.	Mean Sq.	F
Between	9	184.97	20.55	23.88**
Within	4130	3554.53	.86	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Groups:	9. 4.81	7. 4.87	10. 4.94	8. 4.97	5. 5.15	6. 5.19	3. 5.20	4. 5.31	1. 5.43	2. 5.44
9. 4.81	----	.06	.13	.16*	.34**	.38**	.39**	.50**	.52**	.53**
7. 4.87	----	----	.07	.10	.28**	.32**	.33**	.44**	.56**	.57**
10. 4.94	----	----	----	.03	.21**	.25**	.26**	.37**	.49**	.50**
8. 4.97	----	----	----	----	.18**	.22**	.23**	.34**	.46**	.47**
5. 5.15	----	----	----	----	----	.04	.05	.16*	.28**	.29**
6. 5.19	----	----	----	----	----	----	.01	.12	.24**	.25**
3. 5.20	----	----	----	----	----	----	----	.11	.23**	.24**
4. 5.31	----	----	----	----	----	----	----	----	.12	.13
1. 5.43	----	----	----	----	----	----	----	----	----	.01
2. 5.44										

* $p. < .05$, ** $p. < .01$.

STUDENT OPINION CHANGE BY STRATEGY

The primary goal of Objective 4 was to determine if varying teaching strategies influenced student attitude toward foreign language study. No significant differences had been observed in Level I, Project 5-0683.

With the reduced number of students in Level II and the removal of students who had not continued from the experimental population, several significant differences in student attitudes between strategies did emerge. Table 37 shows that at the end of Level I in French those "Functional Skills Method" students who continued into Level II had a significantly higher attitude than their counterparts in "Traditional" classes. This advantage disappeared by the close of Level II.

In German (Table 38) significant differences, FSG > TLM, occurred at the end of Level I but reversed to become nonsignificant, TLM = FSG, at the end of Level II. However, by the end of Level II the pure "Functional Skills" approach students had a significantly poorer opinion of foreign language study than the "Functional Skills + Grammar" students.

TABLE 37

STUDENT OPINION CHANGES

BY STRATEGY: FRENCH

7 Point Scale: 1=low, 7=high

Group	N	Mean	S.D.	p. <
1. TLM, Pre-Exp.	41	5.45	.66	
2. FSG, Pre-Exp.	232	5.39	.72	n.s.
3. FSM, Pre-Exp.	99	5.51	.68	
4. TLM, End 1st yr.	41	4.99	.97	
5. FSG, End 1st yr.	232	5.12	1.04	.05
6. FSM, End 1st yr.	99	5.46	.77	
7. TLM, End 2nd yr.	41	4.61	1.00	
8. FSG, End 2nd yr.	232	4.87	1.11	n.s.
9. FSM, End 2nd yr.	99	4.76	.98	

Source	df	Sm.Sq.	Mean Sq.	F
Between	8	85.81	10.73	12.53**
Within	1107	947.55	.86	

SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS

Tukey "A" Multiple Range Test

Group:	7	9	8	4	5	2	1	6	3
Mean:	4.61	4.76	4.87	4.99	5.12	5.39	5.45	5.46	5.51
7. 4.61	----	.15	.26	.38*	.51**	.78**	.84**	.85**	.90**
9. 4.76	----	----	.11	.23	.36	.63**	.69**	.70**	.75**
8. 4.87	----	----	----	.12	.25	.52**	.58**	.59**	.64**
4. 4.99	----	----	----	----	.13	.40*	.46**	.47*	.52**
5. 5.12	----	----	----	----	----	.27	.34	.35	.39
2. 5.39	----	----	----	----	----	----	.06	.07	.12
1. 5.45	----	----	----	----	----	----	----	.01	.06
6. 5.46	----	----	----	----	----	----	----	----	.05
3. 5.51									

* $p. < .05$, ** $p. < .01$.

TABLE 38

STUDENT OPINION CHANGES

BY STRATEGY: GERMAN

7 Point Scale: 1=low, 7=high

Group	N	Mean	S.D.	p.<
1. TLM, Pre-Exp.	105	5.35	.70	n.s.
2. FSG, Pre-Exp.	145	5.53	.66	
3. FSM, Pre-Exp.	206	5.41	.64	
4. TLM, End 1st yr.	105	5.16	.88	.01
5. FSG, End 1st yr.	145	5.45	.88	
6. FSM, End 1st yr.	206	5.27	.95	
7. TLM, End 2nd yr.	105	5.03	.94	.01
8. FSG, End 2nd yr.	145	5.13	.89	
9. FSM, End 2nd yr.	206	4.75	1.17	

Source	df	Sm.Sqs.	Mean Sq.	F
Between	8	82.11	10.26	13.14**
Within	1359	1062.31	.78	

SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS

Tukey "A" Multiple Range Test

Group:	9	7	8	4	6	1	3	5	2
Mean:	4.75	5.03	5.13	5.16	5.27	5.35	5.41	5.45	5.53
9. 4.75	----	.28**	.38**	.41**	.52**	.60**	.66**	.70**	.78**
7. 5.03	----	----	.10	.13	.24	.32**	.38**	.43**	.50**
8. 5.13	----	----	----	.03	.14	.22	.28	.32*	.40**
4. 5.16	----	----	----	----	.11	.19	.25	.29**	.37**
6. 5.27	----	----	----	----	----	.08	.14	.18	.26
1. 5.35	----	----	----	----	----	----	.06	.10	.18
3. 5.41	----	----	----	----	----	----	----	.04	.12
5. 5.45	----	----	----	----	----	----	----	----	.08
2. 5.53									

* p.< .05, ** p.< .01.

ATTITUDE DIFFERENCES BETWEEN SEXES

Throughout the experiment there were significant differences in both achievement and attitude between male and female students. This phenomenon occurred more frequently among French students than German students as shown in Tables 61 through 66 (Appendix F). A significant difference in attitude indexes between sexes existed throughout in French but not in German.

When analyzed by both strategy and sex, Table 39, several significant differences appear. These seem almost random, FSM> TLM for French females after one year but not two, initial differences existing between FSG> TLM which lasted one year but not two among German males and TLM German females having a significantly better attitude than FSM students after two years.

An analysis was completed by language laboratory type, TR versus AA versus AR within each of the "Functional Skills" strategies but failed to reveal any significant influences of laboratory type on student opinion. The only significant differences occurred initially and were constant over the two-year instructional period. In essence, neither the strategy nor the system had any discernable effect on student attitude toward foreign language study.

TABLE 39

STUDENT OPINION CHANGES: BY STRATEGY AND SEX, TWO-YEAR PERIOD

Group	Traditional Mean	Traditional S.D.	Funct. Skills Mean	Funct. Skills S.D.	Funct. Skills + Gram. Mean	Funct. Skills + Gram. S.D.	Probability of differences
	N=17		N=47		N=69		
French, Male							
Initial	5.21	.61	5.38	.78	5.05	.69	not sig.
After 1 yr.	4.77	1.25	5.15	.79	4.67	1.07	not sig.
After 2 yrs.	4.19	1.05	4.38	.94	4.35	1.18	not sig.
French, Female	N=24		N=52		N=163		
Initial	5.62	.66	5.64	.56	5.53	.69	not sig.
After 1 yr.	5.14	.71	5.73	.63	5.31	.97	.01 FSM > TLM
After 2 yrs.	4.90	.86	5.06	.91	5.07	1.01	not sig.
German, Male	N=72		N=116		N=89		
Initial	5.23	.72	5.32	.65	5.58	.69	.01 FSG > TLM
After 1 yr.	5.12	.82	5.30	.94	5.53	.78	.01 FSG > TLM
After 2 yrs.	4.84	.92	4.77	1.19	5.02	.94	not sig.
German, Female	N=33		N=90		N=56		
Initial	5.61	.60	5.53	.60	5.46	.61	not sig.
After 1 yr.	5.30	.95	5.24	.96	5.34	1.01	not sig.
After 2 yrs.	5.46	.86	4.74	1.16	5.30	.77	.01 TLM > FSM

STUDENT INTERVIEW

At the close of the instructional phase of Project 7-0133, a random ten percent sample of the student population was given a brief personal interview to assist in assessing Objective 4, "To identify and compare student attitudes..." The two-hundred and fifteen French and German students represent secondary classes throughout Pennsylvania, including urban, suburban and rural schools of varying sizes and diverse geographic settings and are considered to be representative of the typical secondary school student. Below is a compilation of the student responses in terms of both numbers and percentages.

Conducted by extra-Project persons outside the foreign language classroom--to permit disassociation from either the Project Staff or participating teachers--the interview was designed to gain insights into student attitudes and motivations relating to the study of modern foreign languages. Developed by Dr. Abe Kramer, a specialist in guidance and counseling at West Chester State College, questions were phrased in the students' language to elicit the most free responses. These free responses were then noted by the interviewers in terms of "Key" words which were reduced to numerical categories for computer analysis.

PROJECT 7-0133, STUDENT INTERVIEW (N=215)

	Primary Reason	Secondary Readon
1. How did you come to take a foreign language?		
college entrance	109 - 50.7%	10 - 4.7%
local school requirement	36 - 16.7%	10 - 4.7%
personal interest	41 - 19.1%	27 - 12.6%
parental wishes	4 - 1.9%	
to gain insight, understanding	3 - 1.4%	5 - 2.3%
miscellaneous other	11 - 5.1%	156 - 72.6%
2. What made you decide on French/German?		
family background	49 - 22.8%	9 - 4.2%
general preference	41 - 19.1%	29 - 13.5%
previous contact	37 - 17.2%	3 - 1.4%
felt important, useful	24 - 11.2%	14 - 16.5%
limited language selection in particular school	18 - 8.4%	6 - 2.8%
FLES experience	9 - 4.2%	1 - .5%
peers' advice	12 - 5.6%	3 - 1.4%
to be different from peers	10 - 4.7%	1 - .5%
miscellaneous other	13 - 6.0%	29 - 13.5%
no particular reason	2 - .1%	138 - 64.2%

3. If you had to do it over again would you make the same choice?

Yes	170 - 79.1%
Yes, with qualifications	8 - 3.7%
No	36 - 16.7%
no response	1 - .5%

4. How do you feel you are getting along in a foreign language?

Excellent	21 - 79.8%
Good	90 - 41.9%
Average	66 - 30.7%
Poor	26 - 12.1%
Failing	none
no response	6 - 2.8%

5. How do you feel about the way French/German is being taught to you?

Liked method	114 - 53.0%
Neutral or mixed feelings	47 - 21.9%
Disliked method	48 - 22.8%

Why do you like or dislike the method?

likes audio-visual aspects	11 - 5.1%	2 - .9%
likes traditional aspects	50 - 23.3%	12 - 5.6%
finds FL easy	17 - 7.9%	6 - 2.8%
finds FL boring	17 - 7.9%	4 - 1.9%
likes or dislikes teacher	26 - 12.1%	2 - .9%
general satisfaction	60 - 27.9%	36 - 16.7%
miscellaneous other	13 - 6.0%	11 - 5.1%
no explanation	21 - 9.8%	152 - 66.0%

Sixteen students gave a third reason for liking or disliking the way in which they were taught.

6. Have you benefited from studying a foreign language?

Yes	189 - 87.9%
No	20 - 9.3%
no explanation	6 - 1.8%

7. Do you have any ideas that might benefit other students who may take a course such as yours?

pay attention in class	32 - 14.9%	9 - 4.2%
study harder	75 - 34.9%	12 - 5.6%
miscellaneous other	13 - 6.0%	15 - 7.0%
no ideas	94 - 43.7%	175 - 81.4%

8. Do you have any ideas on how to improve the way that you were taught?

more traditional emphasis	54 - 25.1%	8 - 3.7%
more cultural emphasis	12 - 5.6%	2 - .9%
more audio-visual aspects	10 - 4.7%	3 - 1.4%
more functional skills emphasis	15 - 7.0%	5 - 2.3%
slower coverage	2 - .9%	2 - .9%
miscellaneous other	18 - 8.4%	9 - 4.2%
no ideas	97 - 45.1%	186 - 86.5%

9. After high school do you expect to continue to study French/German?

Yes	100 - 46.5%
Yes, with qualifications	15 - 7.0%
No	73 - 34.0%
Undecided	22 - 10.2%
no response	5 - 2.3%

10. Do you think you will ever make use of it (the foreign language)?

for travel	79 - 36.7%	11 - 5.1%
in college	28 - 13.0%	3 - 1.4%
in vocation or profession	20 - 9.0%	8 - 3.7%
to converse with natives	16 - 7.4%	7 - 3.3%
for reading	13 - 6.0%	18 - 8.4%
No, unlikely use	39 - 18.1%	6 - 2.8%
miscellaneous other	12 - 5.6%	7 - 3.3%
no response	8 - 3.7%	155 - 72.1%

11. If there were no requirement to take a foreign language (for graduation or college admission, etc.) and you had a free choice of subjects, indicate the three subjects you would choose.

	First choice	Second choice	Third choice
Art	15 - 7.0%	14 - 6.5%	21 - 9.8%
English	54 - 25.1%	39 - 18.1%	29 - 13.5%
Foreign Language	31 - 14.4%	58 - 27.0%	44 - 20.5%
Mathematics	38 - 17.7%	41 - 19.1%	32 - 14.9%
Science	41 - 19.1%	33 - 15.3%	29 - 13.5%
Social Studies	29 - 13.5%	25 - 11.6%	49 - 22.8%
miscellaneous other	4 - 1.9%	2 - .9%	8 - 3.7%
no response	3 - 1.4%	3 - 1.4%	3 - 1.4%

Why did you choose these three subjects?

for college preparation	6 - 2.8%	7 - 3.3%	3 - 1.4%
vocational purposes	50 - 23.3%	8 - .8%	5 - 2.3%
student interest	65 - 30.2%	70 - 32.6%	70 - 32.6%
easy, academic success	28 - 13.0%	22 - 10.2%	11 - 5.1%
self-improvement, useful	51 - 23.7%	65 - 30.2%	58 - 27.0%
general preference	9 - 4.2%	25 - 11.6%	46 - 21.4%
miscellaneous other	2 - .9%	5 - 2.3%	7 - 3.3%
no explanation	1 - .5%	10 - 4.7%	12 - 5.6%
no response	3 - 1.4%	3 - 1.4%	3 - 1.4%

The student interview permitted fresh and even humbling insights into student perceptions concerning the study of modern foreign languages in the public schools. Item 1 indicated that two-thirds of the students took a foreign language to satisfy real or perceived curricular requirements. Secondarily came a personal election while the influence of parents or a need to "understand" other peoples was not perceived by students as an important factor in their undertaking foreign language study.

The decision concerning which language to study (Item 2) was influenced by more factors, the most important being some prior contact either through the family or in other ways including elementary school experiences. A number felt that they had no alternative language due to the curricular limitations of their particular school. Peer pressure at this level of maturity worked about equally in both directions.

At the close of Level II, over eighty percent of the students interviewed indicated that they would make the same choice given a second chance (Item 3). Most students thought they were doing well in language study (Item 4) and none admitted to failure although Project teachers indicated that some of their poorest students were chosen for the random sample.

Items 5 and 8, concerning student attitude toward the teaching strategy, are treated in detail in subsequent paragraphs. Few students would offer concrete suggestions to benefit other students (Item 7).

About one half of the interviewees planned to continue foreign language study after high school, reflecting college aspirations (Item 9) but few students perceived any real definite use for the foreign language (Item 10). Future uses perceived are scattered with almost one-fifth simply not forseeing any future utilization of the foreign language. Few students ever anticipated communicating with native speakers of the language beyond use in "travel" situations.

Students seemed to prefer foreign language study (Item 11a). When asked to choose any three school subjects they would prefer if all curricular restrictions were removed, the foreign language was usually one of the three selected. It must be remembered, however, that the students interviewed did not represent the entire school population since they were completing a successful two-year foreign language experience. The influence of college was not entirely removed by the wording "If there were no requirement..." for immediately after choosing the three preferred subjects, students were asked why they made the choice they did. A number indicated that they still made their decision based on preparation for college.

STUDENT EVALUATION OF TEACHING STRATEGIES

The hypothesis is often assumed that students learning a modern foreign language via a functional skills approach are discontented with the teaching strategy or, conversely, that students seem to "enjoy" this approach more than others. Fourteen traditional, twenty-one functional skills and thirty-nine "combination" classes were represented in the interview sample. It is felt that the random selection, the diverse schools, and the number of different teachers represented in each teaching strategy were enough to off-set uncontrolled variables and to permit an assessment of student attitude toward each teaching strategy.

The students were asked to respond, in an unstructured answer, to the question, *How do you feel about the way a foreign language is being taught to you*? (Item 5). Interviewers then marked the reaction as "Like," "Dislike" or "Mixed." Two hundred and nine students responded to the question. Data on the responses were tabulated and arranged for statistical tests of significance. Responses were as follows:

TABLE 40

STUDENT REACTION TO TEACHING STRATEGY

Assigned Strategy	Like	Mixed	Dislike
Traditional:			
French - 6 classes	13	2	1
German - 7 classes	12	2	7
Functional Skills + Grammar:			
French - 25 classes	35	18	13
German - 14 classes	16	9	9
Functional Skills:			
French - 6 classes	15	8	8
German - 15 classes	23	8	10

It can be clearly seen that over fifty percent of the students indicated that they liked the way they were learning a foreign language while about one quarter were either undecided or disliked their strategy. Still unanswered was the question concerning the significance of student dissatisfaction within each treatment, was the proportion of dissatisfied students the same within each strategy or did the proportion vary significantly for one treatment? A Contingency Table was developed and expected cell values computed. Differences of student responses from the expected number of responses were then assigned values of Chi Square.

TABLE 41

CONTINGENCY TABLE, TEST OF INDEPENDENCE (N209)

Cell		Expected	Observed	Cell Value
TLM:	like	20.2	25	1.14
:	mix	8.3	4	2.23
:	dislike	8.5	8	.03
FSG:	like	54.5	51	.22
:	mix	22.5	27	.90
:	dislike	23.0	22	.04
FSM:	like	39.3	38	.04
:	mix	16.2	16	---
:	dislike	16.5	18	.14

Chi Square = 4.74 at 4 d.f.

The value of Chi Square required for significance with four degrees of freedom is 9.49. There is therefore no grounds for rejecting the independence of student evaluation of his strategy and the strategy itself.

The major portion of the value of Chi Square clearly lies in the "traditional" cells with more students prefering this strategy than were expected. Further refinement was not necessary but for informative purposes separate Contingency Tables were computed for German and French students. For German students (N96), Chi Square equalled 8.28, insignificant, indicating again that in the seventy-three classes represented there was no significant relationship between the strategy employed and the students' evaluation of it.

To further test the hypothesis that functional skills students prefer a more traditional course, an examination was made of the responses to, "What advice would you give to improve the way that you were taught a foreign language?" (Item 8). Many responses were given but of most direct interest were those of "Functional Skills" students, preferring more of the "traditional" skills (formal grammar, reading, writing or translation) or "Traditional" students preferring more stress on functional skills (speaking, conversation). These are shown in Table 42.

TABLE 42

STUDENT ADVICE ON TEACHING METHOD

Assigned Strategy	More Traditional	More Functional Skills
Traditional	1	5
Functional-Skills + Grammar	35	7
Functional Skills	18	5

Several conclusions are obvious. Among these are that a minority of the total sample of 215 students wanted their class to assume the characteristics of the "other" strategy. Educators who maintain that students desire more aspects of one strategy or another may be failing to recognize the basic human desire to emulate others, the "grass is always greener" drive or the student rationalization that he could achieve more if the instruction were different.

Objective 5: To identify levels of foreign language mastery that are attainable in the secondary school language program.

Levels of mastery attainable in the typical secondary school program are definable in terms of progress through a series of materials and in achievement on standardized measures. Both definitions are useful, one in setting realistic and attainable curriculum goals and the other for comparison of a particular class with a larger "parent" population.

TEXT COVERAGE

At the close of the second year of the instructional phase of the experiment, teachers in both original project classes and in the replicating classes reported their progress through their assigned materials. Early in the experiment minimal levels had been established below which students were not to be tested. No other restriction upon progress had been imposed although recommendations had been stated in the guidelines.

Since every foreign language class seems to have its own distinct personality, progress through the materials was irregular. However, the Project classes were considered typical of those in secondary public schools throughout Pennsylvania. The reported amount of material covered by teachers serves to confirm the empirical findings of many foreign language educators that text book authors imply too high a rate of progress for the average class. The material covered in both Level I and Level II classes is illustrated in Table 43.

The majority of German classes in the audio-lingual or functional skills orientated materials completed just a little more than the first book in two years of instruction in the typical high school setting. In the materials published by Holt, Rhinehart and Winston, beginning German classes seemed able to complete only to about Unit 13 in one year of instruction and to Unit 6 of the second year book at the end of two years. In the Audio-Lingual Material, German classes finished Units 11 or 12 at the end of one year of instruction and Units 17 to 18 by the end of the second year. In French the situation is very similar but with slightly less progress. In the Holt materials classes finished about Unit 13 and in the Audio-Lingual Materials, French about Units 10 or 11. In second year French there was more of a spread in the Audio-Lingual Materials but most classes seem to cluster from Units 15 to 19 while in the Holt materials one class was just finishing the first level book and most others had only reached Unit 2 or 3 of the second year book at the end of two years instruction.

TABLE 43

UNITS/CHAPTERS COMPLETED

Text	Unit (Number of Classes)
German I:	
A First Course in German	29 (1)
Audio-Lingual Materials, German	11 (3), 12 (3)
Verstehen und Sprechen	10 (1), 13 (1), 19 (1)
German II:	
A Second Course in German	14 (1), 22 (1), 23 (1), 24 (2)
Audio-Lingual Materials, German	15 (2), 16 (1), 17 (4), 18 (3) 21 (2), 22 (1)
Verstehen und Sprechen	20 (1)
Sprechen und Lesen	2 (1), 3 (1), 6 (1), 12 (1) 14 (1)
French I:	
New First Year French	30 (2)
Parlez-Vous Français?	55 (1)
Audio-Lingual Materials, French	9 (2), 10 (4), 11 (4), 12 (1)
Ecouter et Parler	12 (1), 13 (2), 17 (1)
French II:	
New Second Year French	24 (1), 33 (1)
Cours Moyen de Français	17 (1)
Oui, Je Parle Français	34 (1)
Audio-Lingual Materials, French	14 (1), 15 (2), 16 (1), 17 (4) 19 (2), 21 (2), 22 (1)
Ecouter et Parler	20 (1)
Parler et Lire	2 (3), 3 (1), 6 (1), 7 (1)

ESTABLISHMENT OF PROJECT NORMS

The tendency exists in educational evaluation to compare the achievement of one individual or group with that of another. Publishers of standardized tests have long developed and published "norms" on various instruments to permit the comparison of students to regional or national standards. While every effort is made to develop norms on representative and widely scattered populations, those selected may not be typical of the students in a particular locality or region.

The comparison of the achievement of Project classes on the MLA Cooperative Classroom Tests with the norms published by the Educational Testing Service revealed some differences. This led to the development of "Project" or "Pennsylvania" norms based upon the achievement of Project students. The complete norms for Levels I, II and III on the MLA Cooperative Classroom Listening and Reading Tests are reproduced on pages G-1 through G-10, Appendix G. In several cases "Project" populations exceeded the national sample utilized by the Educational Testing Service and, in the case of Pennsylvania, may represent a more "representative" cross-section of schools.

COMPARISON OF ACHIEVEMENT BY GRADE

At the conclusion of Level I, Project 5-0683, an attempt was made to determine if significant differences in achievement had occurred among students in various grades. None did. However, it was reasoned that since the emphasis on the reading and writing skills increased in Level II, the analysis would again be viable.

Analyses of variance were computed among students grouped within particular grade levels. The assumption was made that such grouping randomly compensated for differences in sex, intelligence and aptitude, although empirically it was felt that more able students generally have the opportunity to elect a two year foreign language sequence earlier than their less able peers.

The mean achievement of students by grade is shown in subsequent tables in Appendix E. Throughout, students in the earliest grade achieved significantly less than students who began later. While some differences of pattern exist among the ranking of group means on Tables 35 through 56, grades 8 and 9 remain consistently low on both the Listening and Reading Tests and in both French and German. This consistent low placement of earlier grades led to an examination of the replication population by grade (Tables 57 through 60, Appendix E). The same phenomenon existed in all four analyses, eighth grade lowest. In seven of the eight analyses significant differences between grades existed at the .01 level of confidence on the Tukey "A" multiple range test. Patterning is illustrated in Table .

TABLE 44

ORDER OF GRADES BY MEAN ACHIEVEMENT

	Rank order of Group Means				Significance of Differences
Listening	Low	____	____	High	Tukey "A"
French I	9	11	12	10	------
French II	9	10	12	11	p. $<$ .01.
German I	9	12	10	11	p. $<$ .01.
German II	9	10	12	11	p. $<$ .01.
Reading					
French I	8	10	9	11	p. $<$ .01.
French II	8	9	11	10	p. $<$ .01.
German I	8	9	11	10	p. $<$ .01.
German II	8	10	9	11	p. $<$ .01.

Objective 6: To determine the strengths and weaknesses of selected commercial programs.

Since it was impossible to divorce text from strategy in the experiment, it was of interest to compare the possible effect of a particular text within a particular strategy. Essentially only one text was used in the "Traditional" classes, A First (Second) Course in German by Huebener and Newmark and Cours Elementaire (Moyen) de Français by Dale and Dale. Only one traditional French class used Parlez-vous Français? and Oui, Je Parle Français by Huebener and Newschatz. In the "Functional Skills" strategies, however, classes were divided more equally between two series, the Audio-Lingual Materials and the Holt, Rinehart Winston Ecouter et Parler--Verstehen und Sprechen texts.

Enough students utilized each text to permit a comparison of the influence of the text employed on final test scores, a measure of both a possible influence on achievement and a possible compatability of one text series with the criterion MLA Cooperative Classroom Tests. Student scores on final tests from thirteen French and thirteen German classes using the ALM were compared with three hundred students from five French and seven German classes studying the Holt materials. Critical Ratios were computed to determine if significant differences existed between the two groups of students (Table 45).

Significant differences in final achievement scores occurred on two of the six measures in French. In German four of the six measures revealed significant differences. All but one significant difference in both languages favored the Holt, Rinehart and Winston materials. This supported the equivalent comparison illustrated on page 103 of the final report of Project 5-0683.

TABLE 45

COMPARISON OF ACHIEVEMENT BY TEXT,
FUNCTIONAL SKILLS I vs. FUNCTIONAL SKILLS II

FRENCH,	Audio-Lingual Materials,N=255		Ecouter et Parler, N=154		
Post-Exp. Tests:	Mean	S.D.	Mean	S.D.	C.R.
1. List. Discrim. Test	48.46	9.54	48.90	9.14	.47
2. LB Listening Test	19.93	8.00	23.77	8.02	4.70**
3. LB Reading Test	20.58	7.75	20.79	9.11	.25
	N=33		N=22		
4. LB Speaking Test	32.33	9.86	30.00	12.52	.74
5. LB Writing Test	41.39	20.41	28.91	21.42	2.16*
6. Sound Production Test	43.24	30.96	40.91	31.07	.27

GERMAN,	Audio-Lingual Materials,N=291		Verstehen und Sprechen,N=147		
Post-Exp. Tests:	Mean	S.D.	Mean	S.D.	C.R.
1. List. Discrim. Test	44.22	11.09	47.59	7.52	3.75**
2. LB Listening Test	17.57	7.57	23.39	8.83	2.43*
3. LB Reading Test	15.27	6.05	19.40	7.66	5.70**
	N=35		N=19		
4. LB Speaking Test	33.00	9.07	37.16	10.88	1.42
5. LB Writing Test	41.37	18.11	51.53	24.07	1.61
6. Sound Production Test	58.60	30.55	71.63	7.29	2.40*

* $p. < .05$, ** $p. < .01$.

Objective 7: To identify teacher factors related to student achievement.

One of the most surprising conclusions of Project 5-0683 was that there existed no direct relationship between teachers' scores on the Modern Language Association Proficiency Tests for Teachers and Advanced Students and the scores of their classes on standardized foreign language achievement tests. The further study of this phenomenon was considered a priority in analyzing the data from Project 7-0133. The question of the relationship of teacher attitude to both student attitude and student achievement was also considered important.

Much information was available on the Project teachers including the criteria most commonly utilized for teacher advancement, years of experience and formal graduate education. All available were the class size, the number of years of experience teaching the foreign language and teacher self-estimates of foreign language ability. All of these were statistically analyzed to determine if they were significantly related to the achievement of a modern foreign language class after one semester, one or two full years of instruction from the same teacher.

Table 46 illustrates the background of the forty classroom teachers who maintained the same class for the two-year experimental period. In the main, the teachers seemed to be well prepared by existing criteria, averaging ten to eleven years experience and having a considerable quantity of formal graduate education. Comparison of the scores obtained on the MLA Teacher Proficiency Tests with the published national pre-institute percentiles indicates that the teachers are fairly representative of the profession.

The relationship of both teacher background and teacher proficiency scores to class achievement was computed by a standard correlation program. Values of the correlation coefficient obtained were assigned levels of significance based upon a standard table after Fisher and Yates with N-2 degrees of freedom. The coefficients are reported in Tables 47 and 48.

It can be seen that almost none of the teacher proficiency factors tested seems to have any systematic relationship to student achievement with the possible exception of some significant relationship to the "listening" skills among the nineteen French classes after one, two or four semesters. This same relationship was not apparent at the end of one or two semesters when the same nineteen teachers were included in the larger (N-52) comparison reported for Project 5-0683 nor did occur in German.

Also included in the relationship study was the class mean on the Student Opinion Scale after two years of modern language study. No relationship existed between any teacher variable and the class attitude toward foreign language study.

TABLE 46

MEAN TEACHER MEASURES AND PROFICIENCY SCORES

	French, N=19		German, N=21	
1. Graduate Semester hours:	36.42		44.48	
2. Yrs. teaching experience:	9.95		10.86	
3. Yrs. for. lang. teaching	6.84		7.52	
MLA Teacher Proficiency Tests:		Nat'l %-ile		Nat'l %-ile
4. Speak	37.74	50-55	41.81	60
5. Listen	71.00	60	88.52	65-70
6. Read	45.47	60	52.00	65-70
7. Write	44.42	55	57.00	65-70
8. Applied Linguistics	49.68	70-75	52.81	70-75
9. Culture	47.11	65	53.62	70-75
10. Professional Preparation	63.26	60	62.29	55

TABLE 47

RELATIONSHIP OF TEACHER FACTORS AND CLASS ACHIEVEMENT

Correlation Coefficients

Teacher Factors:	Student Measures										
	1 Semester		1 Year				2 Years				
GERMAN, N=21	List.	Read	List.	Read	Speak	Write	List.	Read	Speak	Write	SOS
1. Type of Institution	.34	.08	.12	.08	.02	.17	.11	.06	.04	.31	.27
2. No. grad. hours education	.17	-.05	.35	.22	.38	.38	.42	.01	.27	.50*	.02
3. Yrs. Teaching experience	.05	-.02	.07	.07	.29	.14	-.04	-.15	.23	.18	-.31
4. Yrs. F. L. Teaching	.00	-.04	-.00	.08	.35	.26	.04	.01	.25	.16	-.02
5. Self-est., Speak.	-.28	-.26	-.37	-.14	-.18	-.09	-.19	-.18	-.20	.19	.18
6. Self-est., Read.	-.32	-.01	-.15	.13	-.03	.14	-.04	-.19	-.12	.15	.13
7. Self-est., Write.	-.17	-.43*	-.15	.02	-.28	-.35	-.11	-.15	-.04	-.01	.01
FRENCH, N=19											
1. Type of Institution	-.35	-.31	-.01	-.03	.08	-.04	.02	-.14	-.18	-.24	.09
2. No. grad. hours education	.08	.03	.11	.34	-.01	.04	-.03	.20	.26	-.06	-.01
3. Yrs. Teaching experience	-.27	.17	.10	.02	-.25	-.11	.11	.08	-.14	-.23	.36
4. Yrs. F. L. Teaching	-.18	-.14	.23	.07	-.23	-.04	.28	.15	-.04	-.20	.33
5. Self-est., Speak.	.06	-.40	-.22	-.10	.14	-.15	-.36	-.26	-.19	.03	-.20
6. Self-est., Read.	-.02	-.45*	-.25	-.34	.20	-.17	-.39	-.42	-.08	.05	-.18
7. Self-est., Write.	-.07	-.37	-.29	-.22	.25	-.03	-.47*	-.29	-.00	.16	-.31

* $p. < .05$.

TABLE 48

RELATIONSHIP OF TEACHER PROFICIENCY AND CLASS ACHIEVEMENT

Correlation Coefficients

MLA Teacher Proficiency Tests	Student Measures												
	1 Semester			1 Year				2 Years					
	List	Read	List. Disc.	List	Read	Speak	Write	List	Read	Speak	Write	List. Disc.	S.O.S.
GERMAN, N=21													
1. Listen	-.21	-.33	.17	-.03	.12	.04	-.07	.11	.03	.25	.18	.20	.11
2. Speak	-.08	-.17	.18	-.03	-.03	-.00	-.05	.10	.09	.03	.14	.36	.16
3. Read	-.24	-.18	.21	-.12	.09	.11	.06	.02	.16	.16	.24	.34	.20
4. Write	-.10	-.19	.14	.02	.05	.26	.24	.21	.20	.19	.35	.31	.33
5. Linguistics	-.37	-.11	.22	-.23	-.16	.03	.00	-.10	.02	-.27	-.02	.38	.08
6. Culture	-.20	.04	.10	-.25	-.24	-.22	-.22	-.14	-.05	-.24	.05	.09	.27
7. Prof. Prep.	-.27	-.17	.20	-.27	.06	-.17	-.10	-.14	.20	-.11	.18	.26	.40
FRENCH, N=19													
1. Listen	.13	.04	.15	.54*	.30	-.19	-.05	.40	-.08	-.32	-.32	.28	.12
2. Speak	.24	.15	.59**	.55*	.32	.18	.27	.65**	.30	-.01	.07	.67**	-.24
3. Read	.06	-.06	.25	.51*	.15	-.28	-.12	.51*	.02	-.24	-.36	.29	.23
4. Write	.16	.12	.36	.40	.08	.02	.02	.46*	.06	-.06	-.05	.49*	-.13
5. Linguistics	.22	.27	.40	.47*	.17	-.20	.07	.39	.10	.10	-.01	.26	-.13
6. Culture	.09	.43	.70**	.27	.13	-.02	.13	.33	.08	-.13	-.20	.60**	-.12
7. Prof. Prep.	.33	.40	.38	.23	.12	.20	.10	.26	.07	.24	.00	.29	-.12

*p.< .05, ** p.< .01.

TEACHER OPINION MEASURES

Prior to the commencement of the Project during the 1965 pre-experimental workshop, teachers were asked to respond to a semantic differential scale relating to the way in which they viewed their teaching of French or German the previous year. The scale itself, reproduced in Appendix F, was that used throughout the experiment by Project students but completed with reference to the question, "The way I taught French/German this past year."

At the Spring, 1967, evaluation meeting at the close of the two-year experimental period, the teachers again responded to the same Opinion Scale. The scales were scored and analyzed for significance between various groups of teachers; teachers who completed one year, those finishing two years, and new replicating teachers. Comparisons were also made across languages.

Means and standard deviations for these several groups are reported in Table 49. An analysis of variance indicates no significance existed between the various groups of teachers' concept of their own way of teaching over either the two-year time span or between French or German. The teachers always conceived their teaching as more "exciting," "alive," "necessary" and "rewarding" than "dull" or "unimaginative."

TABLE 49

TEACHER OPINION INDICIES, TWO-YEAR PERIOD

7 Point Scale: 1=low, 7=high

Teacher Group	Number	Mean	S.D.
Pre-Instructional:			
German tchrs. who taught 1 yr.	20	4.98	1.22
German tchrs. who taught 2 yrs.	21	5.49	.90
French tchrs. who taught 1 yr.	38	5.45	.94
French tchrs. who taught 2 yrs.	21	5.80	.76
Post-Instructional:			
German tchrs. who finished 2 yrs.	21	5.43	.73
French tchrs. who finished 2 yrs.	21	5.70	.55
German replicating tchrs.	12	5.44	.93
French replicating tchrs.	14	5.17	1.05

F-ratio = 1.681, not significant

THE ROLE OF SEX IN LANGUAGE LEARNING

Throughout Project 5-0683, the sex variable repeatedly emerged as an important correlate of foreign language learning. Special mention was taken of this significant role in the primary statistical analyses; time after time females achieved significantly higher than males.

This known significant contrast required that sex be utilized as a contrast in the Multivariate Analysis of Variance for objectives 1 and 2 and in the analysis of opinion shifts, Appendix F. Sex occurred much less frequently as a significant factor in student achievement by the end of Level II (Table 50).

A careful study of the many contrasts available also revealed that when sex was used as a dimension in connection with language laboratory types some significant differences existed:

French II, Listening Discrimination: $F>M$ at AA, $p.<.020$
German II, Listening Discrimination: $F>M$ at AR, $p.<.052$ an
German II, Final LB Listening: $F>M$ at AR, $p.<.001$.

These occurrences of significance by sex are the exception rather than the rule and may have been influenced by the small number of female observations in some audio-recording German classes.

In all, those males who continued into a second year of foreign language study did as well as the females. This may indicate that only the more able students continue, i.e. most "dropouts" after Level I may be males. This was not investigated since Project data made no distinction between a student who was dropped because of missing data or change of school and those who freely elected not to continue because of low achievement.

TABLE 50

UNIVARIATE ANALYSIS OF VARIANCE BY SEX (M vs F)

AFTER TWO YEARS OF INSTRUCTION, ORIGINAL CLASSES

FINAL TEST	FRENCH (22 classes)		GERMAN (26 classes)	
	F-ratio	p.<	F-ratio	p.<
1. Listening Discrim.	1.021	.313	1.473	.226
2. MLA Coop. Listen	.476	.491	5.677	.018** M>F
3. MLA Coop. Read	1.359	.245	2.953	.087

AFTER ONE YEAR OF INSTRUCTION - REPLICATION CLASSES

	FRENCH (18 classes)		GERMAN (10 classes)	
	F-ratio	p.<	F-ratio	p.<
1. Listening Discrim.	9.929	.002** F>M	.726	.395
2. MLA Coop. Listen	1.082	.299	.317	.574
3. MLA Coop. Read	2.168	.142	4.654	.032* F>M

SUMMARY OF RESULTS

The findings of Project 7-0133 at the conclusion of the second year of foreign language study support the earlier report of Project 5-0683. In general "Traditional" students did better than "Functional Skills" classes in reading and as well as the more modern approaches in listening, speaking and writing. There again seemed to be no advantage for the classes which had access to the language laboratory twice weekly utilizing the commercially prepared programs. Teacher proficiency examinations seem to have little relationship to most measures of class achievement. Student opinion was independent of teaching strategy and the influence of sex on student achievement declined in Level II.

SECTION IV: DISCUSSION

Throughout the several years of the present research project, one goal was formost in the minds of the research staff: to evaluate new curriculum trends in a school situation approaching the reality of secondary education in the United States. The research was never conceived as original but as the large scale replication of previous studies in a broader yet more relevant context.

In the illumination shed by hindsight, several decisions made during the course of the research detracted somewhat from the potential contribution of the experiment. Among these, perhaps, were the choice not to include the "Traditional Modified" strategy suggested by John Carroll, the decision not to utilize the traditional Cooperative French/German Tests during Level II and the replication, the lack of classroom tape recording "Functional Skills" classes in the replication and the non-validation of the much-used Opinion Scales.

It should be remembered that, like much research, it was covertly assumed that the experiment would reveal advantages in favor of newer approaches to foreign language learning. The inception of the experiment itself was a reaction to the widely publicized work of Keating in which he found no advantage for the language laboratory. The present study avoids Keating's errors but yields conclusions not markedly different from his.

The decision, then, not to include the fourth, "Traditional Modified" strategy, because of logistic considerations was also tempered by the assumption that there would exist clearly significant differences on various language skills between "Traditional" and "Functional Skills" classes. The same reasoning resulted in the discontinuation of the 1939-41 Cooperative Tests as final achievement measures.

When the replication was designed, results of the first year had not yet been analyzed. The replication, therefore, was more concerned with which type of laboratory was most effective, not yet realizing that Project 5-0683 would show that the laboratory per se had no effect on achievement.

The Student Opinion Scale, used throughout the experiment to show opinion differences between various groups of students, does not permit the overall evaluation of the student perception of foreign language study. It could have done this if the scale had been concurrently given to measure student opinion on other subject disciplines or on other phases of school life. The Opinion Scale was administered a number of times, always in alternating arrangements, and the repeated use of this measure may have influenced student responses. It can be assumed, however, that the introduction of bias in this manner was equal throughout the various strategies and laboratory systems. As it is, the Opinion Scale permits comparison only within the experimental population and never permits a view of possible similar shifts in other areas of study.

It is unfortunate that a larger sample of the replicating class was not administered Speaking and Writing Tests. A ten percent sample was attempted but due to testers' oversights some students were omitted. This resulted in so few students that statistical contrasts could not be considered valid. It would have been better to have attempted a twenty-five percent sample considering the small number of classes involved.

The research staff is aware of the tendency of the profession to assume that teachers deviated from their assigned teaching strategies as a rationalization of the lack of significant findings in favor of newer strategies and materials. Every possible control was utilized that could be without unreasonably distrubing the normal school routine. The reader should find the candid remarks of the teachers themselves on the Project of great interest. A transcription of the participating teachers' responses to the question, "Did the teachers stay within the assigned strategy when the observer was not in the class?" as well as on other facets of the research is reproduced in Appendix H.

In retrospect, the experiment could have been improved in several ways. It was an improvement over previous *in situ* research in modern foreign languages in that adequate numbers of students representing two languages were involved in each treatment. Materials and tests were not, with the exception of the Valette Tests, especially written but were those most available and in widespread use. The statistical analyses were sophisticated and conservative. Data gathering was as extensive as could be permitted. Reporting has attempted to be factual and objective despite the fact that the conclusions of the research are often in direct opposition to the professional training, biases and judgements of the reporters.

SECTION V: CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The following conclusions can be drawn from the data analyses relevant to each of the stated objectives. This data represents thirty-five discrete measures on one thousand and ninety students in fifty-one French II and German II classes in secondary schools throughout Pennsylvania. Supporting data is furnished by data on six hundred and sixty-three students in twenty-eight replicating Level I classes.

CONCLUSIONS

Objective 1: To determine which of three foreign language teaching strategies is most effective in achieving each of the four foreign language objectives:

A. Listening: No significant differences existed among the three strategies after two years of instruction.

B. Speaking: No significant differences existed among the three strategies on the MLA Cooperative Classroom Speaking Test. Analysis of the unvalidated Valette Speech Production Test indicated some significance in the production of key foreign language sounds, FS > TLM.

C. Reading: Significant differences existed in favor of the "Traditional" classes over the "Functional Skills Method" but not over "Functional Skills + Grammar" classes.

D. Writing: On the MLA Cooperative Classroom Writing Test, which permits no writing by translation, no significant differences existed among the three teaching strategies.

Objective 2: To determine which of three language laboratory systems is best suited, economically and instructionally, to the development of pronunciation and structural accuracy.

In Level I, Project 5-0683, no significant differences existed in foreign language skills classes using (1) a tape recorder in the classroom and those receiving additional practice twice weekly in either (2) an audio-active or (3) an audio-record language laboratory. At the end of Level II, significant differences between these three groups failed to emerge. The language laboratory had no discernable effect on listening or speaking but laboratory time may have influenced reading skills.

Objective 3: To determine which variable, or combination of variables, best predicts student achievement in foreign languages.

Disregarding minor variations among language skills and across languages, the best overall predictors of achievement in foreign languages were scholastic success as evidenced by preceding (1) English and (2) Social Studies grades and the *Modern Language Aptitude Test*. Multiple correlation coefficients ranged from .51 to .89 for the various language skills, all highly significant.

Objective 4: To identify and compare student attitudes toward each of the teaching strategies and language laboratory systems.

While student attitudes toward foreign language study continued to indicate downward shifts from commencement to final measurement, such shifts continued to be independent of both teaching strategy or language laboratory treatment.

Personal interviews with two hundred and fifteen students also failed to reveal significant student attitude differences by experimental treatment.

Objective 5: To identify levels of foreign language mastery that are attainable in the secondary school language program.

Student progress through functional skills text material was at a slower rate than implied by the format of the texts. The student population, considered representative, did not achieve at the level expected under norms on standardized tests published by the Educational Testing Service. Separate "Pennsylvania" norms were established.

Objective 6: To determine the strengths and weaknesses of selected commercial materials.

The format of "Functional Skills" materials implied a greater rate of progress than most classes could do while devoting adequate time to the development of language as habit. Students in one functional skills text achieved significantly higher on criterion measures than students in the second functional skills text.

Objective 7: To identify teacher factors related to student achievement.

There existed little relationship among teacher graduate training, amount of teaching experience, and self-concepts of foreign language proficiency and class achievement after one, two, or four semesters of contact with the same teacher. No significant relationship existed between the scores of forty teachers on the MLA *Proficiency Test for Teachers and Advanced Students* and their classes' mean achievement after one, two or four semesters with the exception of various measures of teach proficiency on class listening skills in French.

IMPLICATIONS

1. Perhaps the greatest implication inherent in the conclusions of Projects 5-0683 and 7-0133 is that the foreign language education profession has for the past decade or more been predicating teaching strategies, materials, and electromechanical devices on theoretical assumptions that may not be entirely valid. While the research conducted by the Project is admittedly imperfect, it hopefully represents the reality of the typical classroom. The implication for a re-examination of the theoretical bases for second language learning in the secondary school environment is evident in the research.

The false implication that foreign language teaching revertsto the strict "traditional" classroom techniques of the 1930's must not be read into the research. "Traditional" teachers as defined in the research had many more insights in human growth, personal interrelations and the learning process than their predecessors of forty years ago.

Countless improvements have been made in the physical classroom, text format and arrangement, and curriculum development. The generation of students utilized in this research has always known television, traveled more widely and seen the world grow smaller. Neither the teacher, the school, nor the students are the same from year to year. Retrogression is not possible and cannot be regarded as an implication of the research. The recasting of theory, perhaps once adequate, into current society is implied.

2. The implication is clear that the "lock-step" language laboratory in the secondary school, no matter of what type, does not meet the expectations posited by earlier more closely controlled research. The twice-weekly utilization employed in the research may not be optimal but reflects the typical school situation.

3. The implication is also clear that student recording equipment may be too ambitious an investment for student drill and pattern practice and that the classroom tape recorder offers the advantage of the "lock-step" language laboratory at a fraction of the cost.

4. The lack of demonstratable relationship between scores on the MLA Teacher Proficiency Tests and student achievement implies that the most important phase of education is the process of teaching not the teacher's background in subject matter. This is given more strength when the lack of substantial skills differences among groups by teaching strategy, no matter how well defined, is considered. The research, in examining student attitude, superficial classroom methodology, and teacher proficiency may have failed to examine the real causes of variation in achievement. These may lie in the unexplored area of process--student motivation for second language learn-

ing and student-teacher interaction. The implication here is clear that more precise examinations need to be made of the role of motivation and classroom interaction and second language learning.

5. Project classes in general did not compare favorably with the national norms published by the Educational Testing Service on the MLA _Cooperative_ _Classroom_ _Tests_. Since Project classes were widely representative and often more numerous than the "norming" population selected by ETS, one may infer either that the entire Project population was somehow "below average" or that the published norms may need revision.

6. "Functional Skills + Grammar" classes were felt by the Project teachers themselves to be the probable "winner" on a poll taken at the end of the two year experimental phase. Such was not the case, rather the strategy in which grammar was presented first then practiced came out ahead on Project 5-0683's "traditional" 1939-41 _Cooperative_ _Tests_. The "Modified Traditional" approach suggested by Carroll was not used. The implication is obvious for research on "grammar before" versus "grammar after" on a large enough scale to be sufficiently generalizeable.

RECOMMENDATIONS

In the light of the conclusions that must be drawn from the data, researchers must make the following recommendations to the profession:

1. There should be established a center concerned with the continuing long-term study of foreign language education in the "real school" environment, especially concerning itself with the transfer, replication and dissemination of localized research and innovation to the broader context of the national curriculum;

2. That the first task of this center be an Interpretive Study of Research and Innovation in Foreign Language Education written for the consumption of those most directly concerned with educational policy making and change, the school administrator, the school trustee, and the classroom teacher;

3. That research be conducted to establish the optimum order of presentation of foreign language material, structure-drill versus drill-structure for varying age levels and grade arrangements, including the middle school;

4. That research be directed toward assessing the role of student motivation in foreign language learning in the public school milieu;

5. That future research involving teaching strategies or classroom procedures attempt to precisely and objectively measure the instructional process within the individual classroom;

6. That the tape recorder be considered essential equipment in every foreign language classroom;

7. That future educational planning envision the language laboratory in terms of individualized practice in addition to regular classroom instruction rather than as a type of classroom activity;

8. That secondary school language learning installations include student recording facilities for testing purposes rather than for use in drill activities;

9. That experimental research design in foreign languages always include extensive pre-testing, including skills tests, to permit meaningful statistical evaluation;

10. That, in the absence of demonstratable relationships between teacher proficiency measures and student achievement, scores on the MLA *Foreign Language Proficiency Tests for Teachers and Advanced Students* be accepted by interested agencies as the equivalent of formal preparation in the foreign language but not as an additional criterion for teacher certification;

11. That local norms be established for foreign language achievement tests and that published "national" norms and percentiles be publicly revised after widespread utilization of a specific test;

12. That separate norms be reported on aptitude and achievement scales for males and females;

13. That authors of "new" foreign language materials be more precise in their statements, explicit and implicit, of expected progress;

14. That foreign language educators seriously reexamine the theoretical bases for formal second language learning in the secondary school environment.

In conclusion, the old adage, "What works in theory does not work in practice" requires that the profession reconsider its theories in light of "real" practice rather than "idealized" situations. Only then can all students gain from the experience of others.

BIBLIOGRAPHY

1. Agard, F. B. and Dunkel, H. B. An Investigation of Second-Language Teaching. Boston: Ginn & Co., 1948.

2. Antioch College. Experiment in French Language Instruction: Second Report, 1959-1960. Yellow Springs, Ohio: Author, 1960.

3. Belyayev, B. V. The Psychology of Teaching Foreign Languages. New York: Macmillan Co., 1964.

4. Bernard, W. "Psychological Principles of Language Learning and the Bilingual Reading Method," Modern Language Journal, 1951, 35, 87-96.

5. Berger, Emanuel. "Analyses of R. F. Keating's A Study of the Effectiveness of Language Laboratories." (Unpublished manuscript) Harrisburg: Bureau of Research, Department of Public Instruction, Commonwealth of Pennsylvania, 1963.

6. Birkmaier, E. M. "Modern Languages," in C. W. Harris (Ed.), Encyclopedia of Educational Research, (3rd ed.) New York: Macmillan, 1960. pp. 861-888.

7. Blayne, T. C. "Results of Developmental Reading Procedures in First Year Spanish," Modern Language Journal, 1946, 30, 39-43.

8. Brooks, N. Language and Language Teaching. New York: Harcourt, Brace & World, Inc., 1961.

9. Buch, J. N. "An Experimental Project to Measure Certain Facets of Language Growth for High School Students in Beginning French When Variations of Language Laboratory Equipment Are Utilized in the Instructional Process," N.D.E.A. Title VII, Project No. 759, 1963.

10. The Bureau of Audio-Visual Instruction, Board of Education of the City of New York, "Foreign Language Laboratories in Secondary Schools," A-V Learning, 1963, 7, 1-4.

11. Campbell, D. T. and Stanley, J. C. "Experimental and Quasi-Experimental Design for Research on Teaching," in Gage, N. L. (Ed.) Handbook of Research on Teaching. Chicago: Rand McNally & Co., 1963, pp. 174-246.

12. Carroll, J. B. "Wanted! A Research Basis for Educational Policy on Foreign Language Teaching," Harvard Ed. Review, 1960, 30, 128-140.

13. ______________ "Research on Teaching Foreign Languages," in Gage, N. L. (Ed.) Handbook of Research on Teaching. Chicago: Rand McNally & Co., 1963, pp. 1060-1100.

14. ____________ "Foreign Language Proficiency Levels Attained by Language Majors Near Graduation From College." *Foreign Language Annals*, Dec. 1967 pp. 131-151.

15. Coleman, Algernon. *The Teaching of Modern Foreign Languages in the United States*. New York: Macmillan, 1929.

16. Conant, J. B. *The American High School Today*. New York: McGraw Hill & Co., 1959.

17. Dundel, H. B. *Second Language Learning*. Boston: Ginn & Co., 1948.

18. Gardner, R. C. and Lambert, W. E. "Motivational Variables in Second-Language Acquisition," *Canadian Journal of Psychology*, 1959, 13, 260-272.

19. Guth, H. P. *English Today & Tomorrow*. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1964.

20. Haden, E. F. "The Texas Language Program" *Publications of the Modern Language Association America*, 1956, 71, 14-20.

21. Hartsook. J. Personal Communication, 1960.

22. Hartsook. J. H. "The Function and Techniques of the Foreign Language Laboratory," in *Modern Techniques in Teaching Foreign Languages, Annual Bulletin 19*. New Haven, Connecticut: Connecticut Audio-Visual Education Association, 1962, 15-24.

23. Hayes, A. S. *Language Laboratory Facilities*. Washington, D. C.: U.S. Department of Health, Education, and Welfare, Office of Education, 1963.

24. Hocking, E. *Language Laboratory and Language Learning*. Washington, D.C., DAVI, NEA, 2nd edition, 1967.

25. Hoge, H. W. "Testing in the Language Laboratory: A Laboratory Experiment in Spanish Pronunciation," *Hispania*, 1959, 42, 147-152.

26. Hughes, J. P. *The Science of Language*. New York: Random House, 1962.

27. Hutchinson, J. C. and Gaarder, A. B. "Brief Analysis of the Keating Report." (Mimeographed) Washington, D. C. Department of Health, Education and Welfare, U. S. Office of Education, 1963.

28. Iodice, D. R. *Guidelines to Language Teaching in Classroom and Laboratory*. Washington, D. C.: Electronic Teaching Laboratories, 1961.

29. Johnston, Marjorie C. and Seerley, Catherine C. *Foreign Language Laboratories in Schools and Colleges*. Washington, D. C.: U.S. Department of Health, Education and Welfare, Office of Education, 1961.

30. Keating, R. F. *A Study of the Effectiveness of Language Laboratories*. New York: Columbia University, Institute of Administrative Research, Teachers College, 1963.

31. Lado, R. *Language Testing: The Construction and Use of Foreign Language Tests*, London and New York: Longmans, Green & Co., 1961.

32. Laurie, S. S. *Lectures on Language and Linguistic Method in the School*. London: Simpkin, Marshall & Co., 1893.

33. Locke, W. N. "Equipment for the Language Laboratory," *International Journal of American Linguistics*, 1960, 261 (Part 2), 25-40.

34. Malecot, Andre. "Oral Grammar Tapes: Theory and Design," *The French Review*, 1960, 33, 491-495.

35. McGeogh, J. A. and Irion, A. L. *The Psychology of Human Learning*, New York: Longmans, Green & Co., 1952.

36. Mueller, G. and Borglum, G. P. "Language Laboratory and Target Language," *French Review*, 1956, 29, 322-331.

37. Mueller, T. "Perception in Foreign Language Learning." *Modern Language Journal*, 1958, 42, 167-171.

38. Parker, W. R. *The National Interest and Foreign Languages: Discussion Guide and Work Paper*. Washington, D. C.: U. S. Government Printing Office, 1957.

39. Pickrel, G., Neidt, C. & Gibson, R. "Tape Recordings Are Used to Teach Seventh Grade Students in Westside Junior High School, Omaha, Nebraska." *National Association Secondary School Principals Bulletin*, 1958, 42 (234), 81-93.

40. Pimsleur, P. "Experimental Design in the Language Field," *Modern Language Forum*, 1957, 42, 157-163.

41. Politzer, R. L. "Student Motivation and Interest in Elementary Language Courses," *Language Learning*, 1953-1954, 5, 15-21.

42. Reed, H. B. "Associative Aids: I. Their Relation to Learning, Retention, and Other Associations, II. Their Relation to Practice and Transfer of Training." *Psychological Review*. 1918, 25, 128-55; 257-285.

3

43. Sandstrom, E. L. and Rofman, R. L. Foreign Language Audio-Lingual Evaluation, September 1964-June 1966. (Unpublished report) Philadelphia: The School District of Philadelphia, January, 1967.

44. Sapon, S. M. "An Application of Psychological Theory to Pronunciation Problems in Second Language Learning," Modern Language Journal, 1952, 36, 111-114.

45. Scherer, A. C. and Wertheimer, M. A Psycholinguistic Experiment in Foreign Language Teaching. New York: McGraw-Hill Book Co., 1964.

46. Scheuler, Herbert "Foreign Language Teaching Under the Army Specialized Training Program." German Quarterly, 1944, 17, 189-190.

47. Siciliano, E. A. "An Experiment in Listening Comprehension," Modern Language Journal, 1959, 43, 226-227.

48. Starr, W. H. "Competency First: New Tests in Foreign Languages," in J. B. Carroll (Ed.), Proc. 1960 Invitational Conference on Testing Problems. Princeton, New Jersey: Educational Testing Service, 1961, pp. 97-110.

49. Williams, G. D. A Psychometric Evaluation of the French and German Listening Discrimination Examinations. (Unpublished Report No. 67-19) the Pennsylvania State University, Office of Student Affairs Research, October, 1967.

APPENDIX A

PARTICIPATING TEACHERS AND SCHOOLS

PARTICIPATING TEACHERS, FRENCH 1967-68

No.	Teacher	School	School District
111	Yauger, Virginia*	German Township	Albert Gallatin Area
112	Yoder, John	L. E. Dieruff	Allentown City
162	Edsall, Geraldine*	Mt. Penn	Antietam
342	"		
331	Bertoline, Veronica	Bethel Park	Bethel Park
307	O'Leary, H. Ola*	Nitschmann Jr.	Bethlehem Area
155	Maxwell, Evan	Boyertown	Boyertown
337	"		
157	Searles, Milton	S. Horace Scott	Coatesville Area
102	Cravens, Gertrude*	Columbia Borough	Columbia Borough
172	Fetterman, Marguerite*	Cumberland Valley	Cumberland Valley
310	Walker, Charles	Darby Township	Darby Township
154	Kunz, Sandra*	Easton Junior High	Easton Area
334	"		
347	Schneck, Dale	Easton	Easton Area
122	Baker, Martha	Hampton Township	Hampton Township
135	Esbenshade, Dorothy*	William Penn	Harrisburg City
335	"		
158	Timmins, Marie*	John Harris	Harrisburg City
152	Grant, Joanne*	Haverford Township	Haverford Township
185	Formento, Stephen	Mt. Lebanon	Mt. Lebanon
341	Kaczorowski, Daniel	Mt. Lebanon	Mt. Lebanon
105	Mesko, Joan	Nazareth	Nazareth Area
153	Kline, Eleanor	North Allegheny	North Allegheny
333	"		
343	Louthar, Mary*	North Hills	North Hills
171	Bedford, Dorothy	Pen Argyl	Pen Argyl
346	Goldberg, Wendy*	Sun Valley	Penn Delco Union
332	Nolan, Mary*	Charles H. Boehm	Pennsbury
345	Treon, Barbara*	Medill Bair	Pennsbury
121	Mainor, Lynnwood	Central	Philadelphia
175	Waldbaum, Minerva*	High School for Girls	Philadelphia
151	Clinchard, Joanna*	Lincoln	Philadelphia
338	Stanford, Joyce	Lincoln	Philadelphia
108	Matz, Roberta*	Olney	Philadelphia
164	Peregrim, Michael	Central	Scranton City
344	"		
101	Bruno, Robert	South Park	South Park
301	"		
141	Melnick, Richard	West Allegheny	West Allegheny
136	Fisher, Nancy*	Wilson Joint	Wilson
336	"		

* denotes Mrs.

PARTICIPATING TEACHERS, GERMAN 1967-68

No.	Teacher	School	School District
203	Kruger, David	Annville-Cleona	Annville-Cleona
401	Smith, Mildred*	Annville-Cleona	Annville-Cleona
224	Kern, Sam	Baldwin	Baldwin-Whitehall
252	Doebel, Marilyn	Bethel Park	Bethel Park
434	Reinbold, Ronald	Bethel Park	Bethel Park
244	Jaeger, Ralph	Blue Mountain	Blue Mountain
255	Voltz, Hedwig*	Central Bucks	Central Bucks
435	"		
443	Hartzell, Robert	Plymouth-Whitemarsh	Colonial
264	Schmidley, William	Plymouth-Whitemarsh	Colonial
272	Schenck, Clark	Cumberland Valley	Cumberland Valley
202	Hollinger, Arthur	Donegal	Donegal
432	Gyenes, Judith*	Emmaus	East Penn Union
221	Chlodney, Rita*	Hampton Township	Hampton Township
441	Brunner, William	William Penn	Harrisburg City
232	Loy, Erma	John Harris	Harrisburg City
206	Schmid, Maria*	Hatboro-Horsham	Hatboro-Horsham
201	Schoedler, Ruth	Kutztown	Kutztown Area
248	Oesterich, Edward	Mt. Lebanon	Mt. Lebanon
283	Wollenhaupt, Wilbert	Muhlenburg	Muhlenburg Township
204	McGonigle, Ruth*	Nazareth	Nazareth Area
251	Clark, Polly	Palisades	Palisades
431	"		
282	Orling, Beth	Pen Argyl	Pen Argyl Area
442	Elliott, Judson	Sun Valley	Penn Delco Union
433	Reeves, William	Medill Bair	Pennsbury
214	Shuster, Mally*	Central	Philadelphia City
213	Santner, Joseph	G. Washington	Philadelphia City
246	Koshatka, Sophie*	High School for Girls	Philadelphia City
266	Wunner, Louise*	Olney	Philadelphia City
444	"		
211	Hardenstine, Ruth*	Pine Grove	Pine Grove Area
215	Yenis, Anthony	Oliver	Pittsburgh City
243	Reeser, Robert	Schuylkill Valley	Schuylkill Valley
222	Singer, Robert	West Scranton	Scranton City
205	Schlicher, Frederick	Upper Perkiomen	Upper Perkiomen

* denotes Mrs.

APPENDIX B

TEACHING STRATEGIES, GENERAL CRITERIA AND EXPECTED LEVELS OF PROFICIENCY

List of general criteria - Functional Skills Method

- A. Use of target language in classroom
  - 1. By the student: for all responses
  - 2. By the teacher: for daily routine communication

- B. Native tongue to be used only for describing grammar and syntax

- C. Sequence of learning
  - 1. Hearing
  - 2. Speaking
  - 3. Reading
  - 4. Writing

- D. Grammar
  - 1. Descriptive rather than prescriptive
  - 2. Incidental to functional skills being taught

- E. Reading
  - 1. Printed material always presented as a transcription of spoken forms
  - 2. As direct communication without the intermediary of translation from the target language to the native tongue

- F. Writing - learned first as a transcription of spoken forms

- G. Testing - written and oral tests given in order to test for listening comprehension and speaking proficiency as well as reading and writing skills

- H. Culture - "total culture" as reflected in language behavior is taught as opposed to refinement or prestige culture

Expected level of proficiency in four skills - Functional Skills Method

- A. Listening comprehension
  - 1. At end of semester
    - a. Phonemic discrimination - all basic sounds of the language
    - b. Understanding of basic words and phrases

  - 2. At end of year
    - a. Phonemic discrimination - nearly all phonemic differences
    - b. Understand simple conversation spoken at normal speed

B. Speaking
  1. At end of semester
    a. Repeat any word or phrase with good accent and intonation
    b. Ability to respond to simple questions and to vary form and structure in simple directed conversation

  2. At end of year
    a. Repeat sentences with correct accent and intonation
    b. Engage in simple conversation on a variety of basic everyday situations
    c. Ability to vary spontaneously any basic structures already learned

C. Reading
  1. At end of semester
    a. Reproduce in writing simple phrases previously learned
    b. Reproduce from dictation basic dialogs already learned

  2. At end of year
    a. Ability to answer questions in written form with spontaneous variation of forms and structures previously learned
    b. Ability to express in writing simple concepts dealing with everyday situations

List of general criteria - traditional method

A. Use of native tongue in the classroom predominant. Target language not to be used for purposes of communicating instructions or information to students.

B. Translation
  1. Directly from native tongue to target language
  2. Reading by translation from target language to native tongue

C. Vocabulary
  1. Word for word equivalents
  2. Academic and literary lexicon stressed

D. Grammar
  1. Analysis before application
  2. Language organized into word lists, paradigms, principal parts, rules
  3. Analysis in depth of grammatical structures

E. Testing
   1. Grades based on written tests
   2. Use of vocabulary and idiom quiz
   3. Frequent use of dictation test
   4. Use of tests requiring thorough knowledge of paradigms or lists

F. Culture - the following cultural areas are emphasized:
   1. Great historical and literary personalities
   2. Monuments
   3. Masterpieces of art, music and literature

G. General orientation of traditional program is academic and intellectual.

Expected level of proficiency in four skills - Traditional Strategy

A. Listening comprehension
   1. At end of semester
      a. Understand simple words and phrases carefully and slowly enunciated
      b. Distinguish gross phonemic variations

   2. At end of year
      a. Understand simple directions and basic conversational phrases spoken at slower than normal speed
      b. Distinguish most phonemic differences

B. Speaking
   1. At end of semester
      a. Ability to repeat sounds, words and phrases previously learned
      b. Respond with little hesitation to simple questions using previously memorized answers

   2. At end of year
      a. Ability to repeat after the model all sounds, words and phrases
      b. Ability to vary basic structural patterns in responding to simple questions

C. Reading
   1. At end of semester
      a. Read and understand simple prose with known vocabulary
      b. Recognize and identify grammatical structures contained in this prose

   2. At end of year
      a. Read and understand short narratives
      b. Recognize grammatical structures
      c. Sight reading of simple prose passages

D. Writing
  1. At end of semester
    a. Write correctly basic conversational phrases
    b. Ability to take dictation of familiar material

  2. At end of year
    a. Ability to compose short prose passage showing correct usage of grammar
    b. Ability to take dictation of some unfamiliar material with known vocabulary

List of general criteria: Functional Skills-Grammar Method

A. Use of target language in classroom
  1. By the student: for all responses
  2. By the teacher: for daily routine communication to pupils of instructions, cues and models

B. Native tongue to be used only for describing grammar and syntax

C. Sequence of learning
  1. Hearing
  2. Speaking
  3. Reading
  4. Writing

D. Grammar
  1. Descriptive rather than prescriptive
  2. Incidental to functional skills being taught

E. Reading
  1. Printed material always presented as a transcription of spoken forms
  2. As direct communication without the intermediary of translation from the target language to the native tongue

F. Writing - learned first as a transcription of spoken forms.

G. Testing - written and oral tests given in order to test for listening comprehension and speaking proficiency as well as reading and writing skills

H. Culture - "total culture" as reflected in language behavior is taught as opposed to refinement or prestige culture

Expected level of proficiency in four skills - functional skills-grammar method

A. Listening comprehension

1. At end of semester
    a. Phonemic discrimination - all basic sounds of the language
    b. Understanding of basic words and phrases - spoken at normal speed

2. At end of year
    a. Phonemic discrimination - nearly all phonemic differences
    b. Understand simple conversation spoken at normal speed

B. Speaking
1. At end of semester
    a. Repeat any word or phrase with good accent and intonation
    b. Ability to respond to simple questions and to vary form and structure in simple directed conversation

2. At end of year
    a. Repeat sentences with correct accent and intonation
    b. Engage in simple conversation on a variety of basic everyday situations
    c. Ability to vary spontaneously any basic structures already learned

C. Reading
1. At end of semester
    a. Read and understand directly (without translating) simple dialogs
    b. Understand grammatical functions in the reading material

2. At end of year
    a. Read and understand directly dialogs and simple prose narratives dealing with everyday situations.
    b. Ability to understand all grammatical functions in the readings

D. Writing
1. At end of semester
    a. Write simple phrases previously learned with understanding of the grammatical functions involved
    b. Reproduce from dictation basic dialogs already learned

2. At end of year
    a. Ability to answer questions in writing with spontaneous variation of forms and structures previously learned
    b. Ability to express in writing simple concepts dealing with everyday situations

APPENDIX C

OBSERVATION REPORT FORM

OBSERVATION REPORT

Second Model - January, 1966

Observation Report--Field Consultant_______________ Date________

Teacher____________________ School________________ Cond.________

FSM

1. Teacher speaks foreign language ☐ 1.
2. Students speak foreign language ☐ 2.
3. Grammar: Subsidiary to functional skills ☐ 3.
4. Speaking only what was listened to ☐ 4.
5. Reading as direct communication ☐ 5.
6. Reading only what was listened to and spoken ☐ 6.
7. Writing only what was listened to, spoken and read ☐ 7.
8. Language as a cultural behavior pattern ☐ 8.
9. Testing as demonstration of functional proficiency ☐ 9.
10. Average use of tapes--ten minutes per day ☐ 10.
11. Average pronunciation drill--3-5 minutes per day ☐ 11.
12. Vocabulary taught in context only ☐ 12.

FSG

1. Teacher speaks foreign language ☐ 1.
2. Students speak foreign language ☐ 2.
3. Grammar: Descriptive; use before rules ☐ 3.
4. Speaking only what was listened to ☐ 4.
5. Reading as direct communication ☐ 5.
6. Reading only what was listened to and spoken ☐ 6.
7. Writing only what was listened to, spoken and read ☐ 7.
8. Language as a cultural behavior pattern ☐ 8.
9. Testing as demonstration of functional proficiency ☐ 9.
10. Average use of tapes--ten minutes per day ☐ 10.
11. Average pronunciation drill--3-5 minutes per day ☐ 11.
12. Vocabulary taught in context only ☐ 12.

TLM

1. Vocabulary drill ☐ 1.
2. Translation of reading lesson ☐ 2.
3. Grammar--formal analysis ☐ 3.
4. Pronunciation--teacher ☐ 4.
5. Pronunciation--student ☐ 5.
6. Reading for total comprehension ☐ 6.
7. Writing--free composition ☐ 7.
8. Culture (refinement) ☐ 8.
9. Use of tape recorder ☐ 9.
10. Use of visual aids ☐ 10.

APPENDIX D

COMPARISON OF ORIGINAL AND REPLICATING STUDENTS

TABLE 51

COMPARISONS OF POPULATIONS BY INTELLIGENCE

Pre-Experimental *California Test of Mental Maturity* (short form)

Non-Language IQ

	N	Mean	S.D.	p.<
1. Original French Students	1210	111.09	12.34	n.s.
2. Original German Students	945	112.63	12.12	
3. Replicating French Students	397	113.16	11.09	n.s.
4. Replicating German Students	242	112.58	11.83	

Source	df	Sm.Sq.	Mean Sq.	F
Between	3	1995	665.00	4.58*
Within	2790	405341	145.28	

SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS

Tukey "A" Multiple Range Test

Group:		1	4	2	3
Mean:		111.09	112.58	112.63	113.16
1	111.09	------	1.49	1.54	2.07*
4	112.58	------	------	.05	.58
2	112.63	------	------	------	.53
3	113.16				

* p.<.05, ** p.< .01.

TABLE 52

COMPARISONS OF POPULATIONS BY INTELLIGENCE

Pre-Experimental _California_ _Test_ _of_ _Mental_ _Maturity_ (short form)

Total IQ

	N	Mean	S.D.	p.<
1. Original French Students	1209	113.46	11.04	.05
2. Original German Students	945	115.22	10.29	
3. Replicating French Students	397	115.89	10.27	.01
4. Replicating German Students	242	113.64	11.30	

Source	df	Sm.Sq.	Mean Sq.	F
Between	3	2723.00	907.67	7.92**
Within	2789	319697.00	114.63	

SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS

Tukey "A" Multiple Range Test

Group:		1	4	2	3
Mean:		113.46	113.64	115.22	115.89
1	113.46	------	.18	1.76*	2.43**
4	113.64	------	------	1.58*	2.25**
2	115.22	------	------	------	.67
3	115.89				

* p.< .05, ** p.< .01.

APPENDIX E

STUDENT ACHIEVEMENT BY GRADE

TABLE 53

ACHIEVEMENT BY GRADE,
FINAL LISTENING TEST - FRENCH

	Grade	N	Mean	S.D.
1.	9th	44	15.73	7.19
2.	10th	249	21.02	7.21
3.	12th	106	22.25	7.93
4.	11th	97	23.52	7.36

Source	df	Sum.Sqs.	Mean Sq.	F
Between	3	1958.66	652.89	10.75
Within	492	29875.98	60.72	

Significance of Differences Between Ordered Means,
Tukey "A" Multiple Range Test

	10th	12th	11th
9th	5.29**	6.53**	7.79**
10th		1.23	2.50**
12th			1.26

** $p. < .01$.

TABLE 54

ACHIEVEMENT BY GRADE,
FINAL READING TEST - FRENCH

	Grade	N	Mean	S.D.
1.	9th	44	16.64	6.57
2.	10th	249	20.97	7.47
3.	12th	106	21.92	10.02
4.	11th	97	24.66	10.13

Source	df	Sum.Sqs.	Mean Sq.	F
Between	3	2098.04	699.35	9.54
Within	492	36065.93	73.31	

Significance of Differences Between Ordered Means,
Tukey "A" Multiple Range Test

	10th	12th	11th
9th	4.33**	5.28**	8.02**
10th		.95	3.69**
12th			2.74**

** $p < .01$.

TABLE 55

ACHIEVEMENT BY GRADE,
FINAL LISTENING TEST - GERMAN

	Grade	N	Mean	S.D.
1.	9th	45	17.78	9.73
2.	10th	292	18.86	7.68
3.	11th	104	19.10	8.17
4.	12th	123	22.20	9.08

Source	df	Sum. Sqs.	Mean Sq.	F
Between	3	1163.88	387.96	5.68
Within	560	38248.10	68.30	

Significance of Differences Between Ordered Means,
Tukey "A" Multiple Range Test

	10th	11th	12th
9th	1.08	1.32	4.42**
10th		.24	3.34**
11th			3.10**

** $p. < .01$.

TABLE 56

ACHIEVEMENT BY GRADE,
FINAL READING TEST - GERMAN

	Grade	N	Mean	S.D.
1.	9th	45	15.36	7.16
2.	11th	104	17.52	7.95
3.	10th	292	18.05	7.58
4.	12th	123	20.72	9.48

Source	df	Sum.Sqs.	Mean Sq.	F
Between	3	1189.55	396.52	6.09
Within	560	36464.64	65.12	

Significance of Differences Between Ordered Means,
Tukey "A" Multiple Range Test

	11th	10th	12th
9th	2.16**	2.69**	5.46**
11th		.53	3.19**
10th			2.67**

** p.$<$.01.

TABLE 57

COMPARISON OF ACHIEVEMENT BY GRADE,
FINAL LISTENING TEST - FRENCH REPLICATORS

	Grade	N	Mean	S.D.
1.	8th	62	13.94	6.09
2.	9th	145	15.03	5.35
3.	10th	132	15.01	5.44
4.	11th	54	15.01	3.85

Source	df	Sum.Sqs.	Mean Sq.	F-ratio
Between	3	61.24	20.41	.72
Within	389	11049.61	28.41	

No significant differences existed among the several grades.

TABLE 58

COMPARISON OF ACHIEVEMENT BY GRADE,
FINAL READING TEST - FRENCH REPLICATORS

	Grade	N	Mean	S.D.
1.	8th	62	14.68	4.87
2.	9th	145	16.03	5.66
3.	10th	132	15.79	4.33
4.	11th	54	17.33	4.86

Source	df	Sum.Sqs.	Mean Sq.	F-ratio
Between	3	207.31	69.11	2.75**
Within	309	9780.92	25.14	

Significance of Differences Between Ordered Means,
Tukey "A" Multiple Range Test

	10th	9th	11th
8th	1.12*	1.35**	2.66**
10th		.23	1.54**
9th			1.31**

* $p. < .05$, ** $p. < .01$.

TABLE 59

COMPARISON OF ACHIEVEMENT BY GRADE, FINAL LISTENING TEST - GERMAN REPLICATORS

	Grade	N	Mean	S.D.
1.	8th	24	10.88	3.42
2.	9th	111	14.11	5.82
3.	10th	66	16.97	5.70
4.	11th	38	14.08	5.63

Source	df	Sum.Sqs.	Mean Sq.	F-ratio
Between	3	740.58	246.86	7.97**
Within	235	7282.03	30.99	

Significance of Differences Between Ordered Means,
Tukey "A" Multiple Range Test

	11th	9th	10th
11th	3.20**	3.23**	6.09**
9th		.03	2.89**
10th			2.86**

** $p. < .01$.

TABLE 60

COMPARISON OF ACHIEVEMENT BY GRADE,
FINAL READING TEST - GERMAN REPLICATORS

	Grade	N	Mean	S.D.
1.	8th	24	12.08	4.42
2.	9th	111	13.78	4.43
3.	10th	66	15.11	3.98
4.	11th	38	13.82	4.38

Source	df	Sum.Sqs.	Mean Sq.	F-ratio
Between	3	175.32	58.44	3.16**
Within	235	4344.61	18.49	

Significance of Differences Between Ordered Means,
Tukey "A" Multiple Range Test

	9th	12th	11th
8th	1.70**	1.73**	3.02**
9th		.03	1.32*
12th			1.29*

* p. $<$.05, ** p. $<$ .01.

APPENDIX F

STUDENT OPINION CHANGES BY SEX

Name______________________________Date________
last first middle

Instructor____________________School______________________________________

STUDENT OPINION SCALE

This scale is an attempt to get your general impression about the study of foreign language. There is no right or wrong feeling or impression. Your responses on this scale will not be used by the teacher to determine your grades.

You will see that on each line there are two words, such as:

	1	2	3	4	5	6	7	
intelligent	( )	( )	( )	( )	( )	( )	( )	stupid

Between these two words are seven spaces, and somewhere between the two words (or extremes) is your impression about something. If you are asked your impression about television news programs, you might check as follows:

	1	2	3	4	5	6	7	
intelligent	( )	(X)	( )	( )	( )	( )	( )	stupid

but if you were asked your impression about high school, you might check somewhere else. In some cases you may not have a feeling one way or the other, in which case you would place an "X" in the middle space (no. 4).

For each pair of words on this scale, place an "X" in the position between 1 and 7 that best fits your impression about . . . .

THE STUDY OF FRENCH (OR GERMAN) THIS YEAR

	1	2	3	4	5	6	7	
dull	( )	( )	( )	( )	( )	( )	( )	exciting
lifeless	( )	( )	( )	( )	( )	( )	( )	alive
boring	( )	( )	( )	( )	( )	( )	( )	interesting
enjoy	( )	( )	( )	( )	( )	( )	( )	dread
like	( )	( )	( )	( )	( )	( )	( )	dislike
least	( )	( )	( )	( )	( )	( )	( )	most
necessary	( )	( )	( )	( )	( )	( )	( )	unnecessary
hard	( )	( )	( )	( )	( )	( )	( )	easy
meaningless	( )	( )	( )	( )	( )	( )	( )	meaningful
important	( )	( )	( )	( )	( )	( )	( )	unimportant
unsuccessful	( )	( )	( )	( )	( )	( )	( )	successful
discouraging	( )	( )	( )	( )	( )	( )	( )	rewarding
worthless	( )	( )	( )	( )	( )	( )	( )	valuable
fair	( )	( )	( )	( )	( )	( )	( )	unfair
practical	( )	( )	( )	( )	( )	( )	( )	impractical
inexact	( )	( )	( )	( )	( )	( )	( )	exact
certain	( )	( )	( )	( )	( )	( )	( )	uncertain
disorganized	( )	( )	( )	( )	( )	( )	( )	organized

TABLE 61

STUDENT OPINION CHANGES

BY SEX: FRENCH

7 Point Scale: 1=low, 7=high

Group	N	Mean	S.D.	p. <
1. Males, Pre-Exp.	133	5.19	.72	.01
2. Females, Pre-Exp.	239	5.56	.65	
3. Males, End 1st yr.	133	4.85	1.03	.01
4. Females, End 1st yr.	239	5.39	.90	
5. Males, Fall 2nd yr.	127	4.82	.99	.01
6. Females, Fall 2nd yr.	295	5.33	.85	
7. Males, Mid 2nd yr.	127	4.50	.91	.01
8. Females, Mid 2nd yr.	245	5.06	.93	
9. Males, End 2nd yr.	127	4.34	1.08	.01
10. Females, End 2nd yr.	245	5.05	.97	

Source	df	Sm.Sq.	Mean Sq.	F
Between	9	220.75	24.53	30.23**
Within	1850	1501.03	.81	

SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS

Tukey "A" Multiple Range Test

Group:		9	7	5	3	10	8	1	6	4	2
Mean:		4.34	4.50	4.82	4.85	5.05	5.06	5.19	5.33	5.39	5.56
9	4.34	----	.16	.48**	.51**	.71**	.72**	.85**	.99**	1.05**	1.22**
7	4.50	----	----	.32**	.35**	.55**	.56**	.69**	.83**	.89**	1.06**
5	4.82	----	----	----	.03	.23**	.24	.37**	.51**	.57**	.74**
3	4.85	----	----	----	----	.20	.21	.34**	.48**	.54**	.71**
10	5.05	----	----	----	----	----	.01	.14	.28*	.34**	.51**
8	5.06	----	----	----	----	----	----	.13	.27*	.33**	.50**
1	5.19	----	----	----	----	----	----	----	.14	.20	.37**
6	5.33	----	----	----	----	----	----	----	----	.06	.23*
4	5.31	----	----	----	----	----	----	----	----	----	.17
2	5.56										

* p.<.05, ** p.<.01.

TABLE 62

STUDENT OPINION CHANGES

BY SEX: GERMAN

7 Point Scale: 1=low, 7=high

Group	N	Mean	S.D.	p.<
1. Males, Pre-Exp.	277	5.38	.69	n.s.
2. Females, Pre-Exp.	179	5.52	.60	
3. Males, End 1st yr.	277	5.33	.87	n.s.
4. Females, End 1st yr	179	5.28	.97	
5. Males, Fall 2nd yr.	279	5.14	.92	n.s.
6. Females, Fall 2nd yr.	179	5.27	.87	
7. Males, Mid 2nd yr.	277	4.93	1.05	n.s.
8. Females, Mid 2nd yr.	179	5.04	.98	
9. Males, End 2nd yr.	277	4.87	1.05	n.s.
10. Females, End 2nd yr.	179	5.04	1.04	

Source	df	Sm.Sq.	Mean Sq.	F
Between	9	92.83	10.31	12.20**
Within	2270	1918.87	.85	

SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS

Tukey "A" Multiple Range Test

Group:		9	7	8	10	5	6	4	3	1	2
Mean:		4.87	4.93	5.04	5.04	5.14	5.27	5.28	5.33	5.38	5.52
9	4.87	----	.06	.17	.17	.27*	.40**	.41**	.46**	.51**	.65**
7	4.93	----	----	.11	.11	.21	.34**	.35**	.40**	.45**	.59**
8	5.04	----	----	----	.00	.10	.23*	.24	.29*	.34**	.48**
10	5.04	----	----	----	----	.10	.23*	.24*	.29**	.34**	.48**
5	5.14	----	----	----	----	----	.13	.14	.19	.24	.38**
6	5.27	----	----	----	----	----	----	.01	.06	.11	.25*
4	5.28	----	----	----	----	----	----	----	.05	.10	.24*
3	5.33	----	----	----	----	----	----	----	----	.05	.19
1	5.38	----	----	----	----	----	----	----	----	----	.14
2	5.52										

* p.< .05, ** p.< .01.

TABLE 63

STUDENT OPINION SCALE - FRENCH, MALES

Two-Year Period

7 Point Scale: 1=low, 7=high

Groups:	N	Mean	S.D.
1. Pre-experimental, Traditional	17	5.21	.61
2. Pre-experimental, Functional Skills-grammar	69	5.06	.69
3. Pre-experimental, Functional Skills Method	47	5.38	.78
4. Mid-experimental, Traditional	17	4.77	1.25
5. Mid-experimental, Functional Skills-grammar	69	4.67	1.07
6. Mid-experimental, Functional Skills Method	47	5.15	.79
7. Post-experimental, Traditional	17	4.20	1.05
8. Post-experimental, Functional Skills-grammar	66	4.35	1.18
9. Post-experimental, Functional Skills Method	44	4.39	.95

Source	df	Sm.Sqs.	Mean Sq.	F
Between	8	57.06	7.13	7.95
Within	384	344.75	.90	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group:		7	8	9	5	4	2	6	1	3
Mean:		4.20	4.35	4.39	4.67	4.77	5.06	5.15	5.21	5.38
7	4.20	----	.15	.19	.47	.57	.86**	.95**	1.01**	1.18**
8	4.35	----	----	.04	.32	.42	.71*	.80*	.86**	1.03**
9	4.39	----	----	----	.28	.38	.67*	.76*	.82**	.99**
5	4.67	----	----	----	----	.10	.39	.48	.54	.71*
4	4.77	----	----	----	----	----	.29	.38	.44	.61
2	5.06	----	----	----	----	----	----	.09	.15	.32
6	5.15	----	----	----	----	----	----	----	.06	.18
1	5.21	----	----	----	----	----	----	----	----	.17
3	5.38									

* p.$<$ .05, ** p.$<$ .01.

TABLE 64

ANALYSIS OF VARIANCE

STUDENT OPINION SCALE - FRENCH, FEMALES

Two-Year Period

7 Point Scale: 1=low, 7=high

Groups:	N	Mean	S.D.
1. Pre-experimental, Traditional	24	5.62	.66
2. Pre-experimental, Functional Skills-grammar	163	5.53	.69
3. Pre-experimental, Functional Skills Method	52	5.64	.56
4. Mid-experimental, Traditional	24	5.14	.71
5. Mid-experimental, Functional Skills-grammar	163	5.31	.97
6. Mid-experimental, Functional Skills Method	52	5.73	.63
7. Post-experimental, Traditional	24	4.90	.87
8. Post-experimental, Functional Skills-grammar	166	5.07	1.01
9. Post-experimental, Functional Skills Method	55	5.06	.91

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	41.87	5.23	7.21
Within	714	518.47	.73	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group:		7	9	8	4	5	2	1	3	6
Mean:		4.90	5.06	5.07	5.14	5.31	5.53	5.62	5.64	5.73
7	4.90	---	.16	.17	.24	.41	.63**	.72**	.74**	.83**
9	5.06	---	----	.01	.08	.25	.47	.56*	.58*	.67**
8	5.07	---	----	----	.07	.24	.44	.55*	.57*	.66**
4	5.14	---	----	----	----	.17	.39	.48*	.50*	.59*
5	5.31	---	----	----	----	----	.22	.31	.33	.42
2	5.53	---	----	----	----	----	----	.09	.11	.20
1	5.62	---	----	----	----	----	----	----	.02	.11
3	5.64	---	----	----	----	----	----	----	----	.09
6	5.73									

* p.$<$ .05, ** p.$<$ .01.

TABLE 65

STUDENT OPINION SCALE - GERMAN MALES

Two-Year Period

7 Point Scale: 1=low, 7=high

Groups:	N	Mean	S.D.
1. Pre-experimental, Traditional	72	5.23	.72
2. Pre-experimental, Functional Skills-grammar	89	5.58	.69
3. Pre-experimental, Functional Skills Method	116	5.32	.65
4. Mid-experimental, Traditional	72	5.12	.82
5. Mid-experimental, Functional Skills-grammar	89	5.53	.78
6. Mid-experimental, Functional Skills Method	116	5.30	.94
7. Post-experimental, Traditional	78	4.84	.92
8. Post-experimental, Functional Skills-grammar	90	5.02	.94
9. Post-experimental, Functional Skills Method	116	4.77	1.19

ANALYSIS OF VARIANCE

Source	df	Sm. Sqs.	Mean Sq.	F
Between	8	59.46	7.43	9.68
Within	824	633.10	.77	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group:		9	7	8	4	1	6	3	5	2
Mean:		4.77	4.84	5.02	5.12	5.23	5.30	5.32	5.53	5.58
9	4.77	---	.07	.25	.35*	.46**	.53**	.55**	.76**	.81**
7	4.84	---	----	.18	.28	.39*	.46**	.48**	.69**	.84**
8	5.02	---	----	----	.10	.21	.29	.30	.15**	.56**
4	5.12	---	----	----	----	.11	.18	.20	.41*	.46**
1	5.23	---	----	----	----	----	.07	.09	.30	.35
6	5.30	---	----	----	----	----	----	.02	.23	.28
3	5.32	---	----	----	----	----	----	----	.21	.26
5	5.53	---	----	----	----	----	----	----	----	.05
2	5.58									

* p.$<$.05, ** p.$<$ .01.

TABLE 66

STUDENT OPINION SCALE - GERMAN FEMALES

Two-Year Period

7 Point Scale: 1=low, 7=high

Groups:	N	Mean	S.D.
1. Pre-experimental, Traditional	33	5.61	.60
2. Pre-experimental, Functional Skills-grammar	56	5.46	.61
3. Pre-experimental, Functional Skills Method	90	5.53	.60
4. Mid-experimental, Traditional	33	5.31	.95
5. Mid-experimental, Functional Skills-grammar	56	5.34	1.01
6. Mid-experimental, Functional Skills Method	90	5.24	.96
7. Post-experimental, Traditional	32	5.47	.86
8. Post-experimental, Functional Skills-grammar	55	5.30	.77
9. Post-experimental, Functional Skills Method	90	4.74	1.16

ANALYSIS OF VARIANCE

Source	df	Sm.Sqs.	Mean Sq.	F
Between	8	39.17	4.90	6.35
Within	526	405.88	.77	

SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED MEANS

Tukey "A" Multiple Range Test

Group:		9	6	8	4	5	2	7	3	1
Mean:		4.74	5.24	5.30	5.31	5.34	5.46	5.47	5.53	5.61
9	4.74	---	.50**	.56**	.57**	.60**	.72**	.73**	.79**	.87**
6	5.24	---	----	.06	.07	.10	.22	.23	.29	.37
8	5.30	---	----	----	.01	.04	.16	.17	.23	.31
4	5.31	---	----	----	----	.03	.15	.16	.22	.30
5	5.34	---	----	----	----	----	.12	.13	.19	.27
2	5.46	---	----	----	----	----	----	.01	.07	.15
7	5.47	---	----	----	----	----	----	----	.06	.14
3	5.53	---	----	----	----	----	----	----	----	.08
1	5.61									

* p.< .05, ** p.< .01.

APPENDIX G

PROJECT NORMS
MLA COOPERATIVE CLASSROOM TESTS

PROJECT NORMS, MLA COOPERATIVE CLASSROOM READING TEST

FRENCH, FORM LB, 1 SEMESTER

Traditional N=210		Functional Skills N=1029		Total Population N=1239	
Raw Score	Percentile	Raw Score	Percentile	Raw Score	Percentile
22-28	99	26-42	99	26-42	99
21	96	23-25	98-99	23-25	98-99
20	94	22	98	22	98
19	91-92	21	97-98	21	97
18	87	20	96	20	95-96
17	79	19	93-94	19	93
16	70	18	89-90	18	89
15	61	17	85-86	17	84-85
14	49	16	80	16	78
13	35	15	70-71	15	69
12	24	14	59	14	58
11	14	13	48-49	13	46
10	7-8	12	37-38	12	35
9	3	11	27	11	25
0-8	1	10	17	10	15-16
		9	10	9	9
		8	5	8	4-5
		7	2-3	0-7	2
		0-6	1		

Range	7-28	Range	03-42	Range	03-42
Median	14	Median	13	Median	13
Mode	14	Mode	14	Mode	14
Mean	14.938	Mean	12.15	Mean	13.8
S.D.	3.301	S.D.	3.844	S.D.	3.781

PROJECT NORMS, MLA COOPERATIVE CLASSROOM LISTENING TEST

FRENCH, FORM LB, 1 SEMESTER

Traditional N=211		Functional Skills N=1030		Total Population N=1239	
Raw Score	Percentile	Raw Score	Percentile	Raw Score	Percentile
22-25	99	30-42	99	24-42	99
21	98	24-26	98	23	98-99
20	97	22-23	97	22	98
19	95	21	96	21	97
18	94	20	95	20	96
17	90	19	94	19	95
16	86	18	91	18	92-93
15	79	17	88	17	89
14	70	16	85	16	86
13	57-58	15	79-80	15	80
12	43	14	73	14	73
11	32	13	64	13	64
10	22	12	54	12	53
9	13	11	42	11	41
8	8	10	31	10	30
7	3	9	22	9	20
0-6	1	8	13	8	9
		7	6	7	6
		6	3	6	3
		0-5	1	0-5	1

Range	6-25	Range	0-42	Range	0-42
Median	12	Median	11	Median	11
Mode	14	Mode	12	Mode	12
Mean	13.061	Mean	12.478	Mean	12.585
S.D.	3.322	S.D.	7.773	S.D.	4.005

PROJECT NORMS, MLA COOPERATIVE CLASSROOM LISTENING TEST

FRENCH, FORM LA, 2 SEMESTERS

Traditional N=211		Functional Skills N=1031		Total Population N=1242	
Raw Score	Percentile	Raw Score	Percentile	Raw Score	Percentile
23-25	99	30-80	99	30-80	99
22	97	28-29	98	29	98
21	95	27	97	27-28	97
20	93	26	96	25-26	96
19	91	25	95	24	95
18	87	24	94	23	93
17	79	23	93	22	92
16	75	22	91	21	89
15	66	21	89	20	86
14	58	20	85	19	83
13	47	19	82	18	80
12	34	18	79	17	75
11	29	17	74	16	69
10	19	16	68	15	63
9	14	15	62	14	57
8	8	14	57	13	47
7	4	13	48	12	38
0-6	1	12	39	11	30
		11	31	10	22
		10	23	9	15
		9	16	8	9
		8	10	7	4
		7	4	6	2
		6	3	0-5	1
		0-5	1		

Range	5-25	Range	0-80	Range	0-80
Median	13	Median	13	Median	13
Mode	13	Mode	14	Mode	14
Mean	13.95	Mean	14.62	Mean	14.64
S.D.	4.01	S.D.	5.89	S.D.	5.65

PROJECT NORMS, MLA COOPERATIVE CLASSROOM READING TEST

FRENCH, FORM LA, 2 SEMESTERS

Traditional
N=212

Raw Score	Percentile
30-40	99
28-29	97
27	94
26	92
24-25	91
23	87
22	84
21	78
20	75
19	68
18	64
17	54
16	46
15	35
14	27
13	24
12	17-18
11	13
10	10
9	5
8	3
7	2
0-6	1

Range	6-40
Median	16
Mode	16
Mean	16.79
S.D.	6.39

Functional Skills
N=1035

Raw Score	Percentile
29-43	99
28	98
26-27	97
25	96
24	95
23	93
22	91
21	89
20	86
19	83
18	79
17	72
16	65
15	56-57
14	45
13	36
12	27
11	18
10	11
9	5
8	3
0-7	1

Range	0-43
Median	14
Mode	15
Mean	16.43
S.D.	4.41

Total Population
N=1247

Raw Score	Percentile
30-43	99
29	98
27	97
26	96
25	95
24	94
23	92
22	90
21	87
20	84
19	81
18	76-77
17	69
16	62
15	53
14	42
13	34
12	25
11	17
10	10
9	5
8	3
0-7	1

Range	0-43
Median	14
Mode	15
Mean	15.80
S.D.	4.20

PROJECT NORMS, MLA COOPERATIVE CLASSROOM LISTENING TEST

GERMAN, FORM LA, 2 SEMESTERS

Traditional N=134		Functional Skills N=786		Total Population N=920	
Raw Score	Percentile	Raw Score	Percentile	Raw Score	Percentile
34-40	99	31-45	99	31-45	99
31	98	30	98	30	98
27-30	97	28-29	97	28-29	97
26	92	26-27	96	27	96
25	91	25	94	26	95
23-24	88	24	93	25	94
22	87	23	92	24	92
21	84	22	90	23	91
20	81	21	88	22	90
19	78	20	85	21	88
18	67	19	82	20	85
17	63	18	78	19	81
16	52	17	72	18	76
15	45	16	66	17	70
14	38	15	57	16	64
13	32	14	49	15	55
12	26	13	40	14	48
11	17	12	30	13	39
10	9	11	22	12	30
9	5	10	14	11	21
0-6	1	9	8	10	14
		8	4	9	7
		7	2	8	4
		0-6	1	7	2
				0-6	1

Range	0-40	Range	5-45	Range	0-45
Median	15	Median	14	Median	14
Mode	17	Mode	13	Mode	13
Mean	16.61	Mean	16.11	Mean	15.59
S.D.	5.80	S.D.	2.50	S.D.	4.77

PROJECT NORMS, MLA COOPERATIVE CLASSROOM READING TEST

GERMAN, FORM LA, 2 SEMESTERS

Traditional N=135		Functional Skills N=785		Total Population N=921	
Raw Score	Percentile	Raw Score	Percentile	Raw Score	Percentile
34-40	99	27-71	99	29-71	99
29-33	97	24-26	98	26-28	98
28	96	23	97	24-25	97
26-27	94	22	96	23	96
25	91	21	95	22	94
24	89	20	92	21	93
23	88	19	89	20	89
22	84	18	84	19	86
21	80	17	77	18	81
20	74	16	70	17	74
19	67	15	61	16	67
18	62	14	50	15	58
17	60	13	40	14	48
16	50	12	29	13	38
15	41	11	21	12	28
14	34	10	13	11	20
13	27	9	7	10	13
12	22	8	4	9	6
11	14	7	2	8	4
10	13	0-6	1	7	2
9	5			0-6	1
8	3				
0-7	2				

Range	5-40	Range	0-71	Range	0-71
Median	15	Median	13	Median	14
Mode	17	Mode	15	Mode	15
Mean	17.16	Mean	14.78	Mean	15.11
S.D.	5.92	S.D.	4.8	S.D.	5.10

PROJECT NORMS

FRENCH, FORM LB, 4 SEMESTERS

Listening, N=475

Raw Score	Percentile
40-41	99
39	98
37-38	97
36	96
34-35	94
33	92
32	89
31	87
30	85
29	82
28	79
27	76
26	74
25	70
24	66
23	61
22	57
21	51
20	45
19	41
18	37
17	32
16	27
15	21
14	17
13	14
12	10
11	8
10	4
9	2
0-8	1

Range	3-41
Median	20
Mode	22
Mean	21.8
S.D.	7.59

Reading, N=475

Raw Score	Percentile
45-50	99
43-44	98
42	97
40-41	96
39	95
37-38	94
36	92
35	91
33-34	90
32	89
31	87
30	84
29	83
28	79
27	76
26	73
25	69
24	64
23	62
22	57
21	53
20	49
19	42
18	38
17	33
16	28
15	23
14	19
13	14
12	8
11	6
10	3
0-9	1

Range	4-50
Median	20
Mode	20
Mean	22.09
S.D.	8.30

PROJECT NORMS

GERMAN, FORM LB, 4 SEMESTERS

Listening, N=548

Raw Score	Percentile
41-45	99
38-39	98
37	97
36	96
35	95
34	94
33	93
32	91
31	90
30	87
29	86
28	84
27	82
26	79
25	77
24	74
23	69
22	66
21	62
20	58
19	53
18	48
17	44
16	39
15	33
14	27
13	22
12	17
11	11
10	7
9	4
8	3
7	2
0-6	1

Range	0-45
Median	18
Mode	16
Mean	19.78
S.D.	8.40

Reading, N=549

Raw Score	Percentile
43-47	99
41-42	98
37-40	97
35-36	96
34	95
33	94
32	92
31	91
30	89
29	88
27-28	86
26	84
25	83
24	81
23	77
22	74
21	70
20	67
19	64
18	59
17	53
16	48
15	42
14	35
13	27
12	20
11	14
10	8
9	5
8	2
0-7	1

Range	4-47
Median	16
Mode	14
Mean	18.73
S.D.	7.81

APPENDIX H

TRANSCRIPTION OF THE DISCUSSION PORTION OF THE FINAL EVALUATION MEETING

TRANSCRIPTION OF THE DISCUSSION PORTION OF THE FINAL EVALUATION MEETING.

On Saturday, May 4, 1968, the original participating teachers, supervisors and Project Staff met for a final evaluation meeting at West Chester. A number of original participants from the Pittsburgh area attended as well as many from eastern Pennsylvania.

After the results of the second year were presented to the group, a general discussion of the conduct of the experiment was encouraged. Teachers and staff participated freely in the exchange. The following pages are a transcription, paraphrased at times for brevity, of the discussion. Every attempt was made to retain the freedom and flavor of the discussion.

PROJECT 1330 EVALUATION MEETING

SATURDAY, MAY 4, 1968

The following Teacher responses were given to the question: "Did the teachers stay within the assigned strategy when the observer was not in the class?"

T_1 "I did the same thing in the classroom whether the Observer was there or not; I made no special lesson plan."

T_2 "I adhered even when the Observer was not there."

Dr. Smith: "If the teacher was observed deviating from the assigned strategy, he was dropped from the Project."

T_3 Felt that "Most teachers stayed with the assigned strategy not only because the Observer was there but also because the students would be aware that the teacher was putting on a show. Out of respect for himself and his students the teacher adhered."

Several teachers voiced agreement.

T_4 "Most teachers were given the strategy they were already teaching, therefore they didn't deviate." Observer did not bother him.

T_5 "My students may have been more motivated when taking the tests since these were used as the students' final exam grades. The students made more effort to study for exams in May since these counted, whereas tests earlier in the year did not count."

Several teachers voiced agreement.

T_6 "The TLM strategy was not really defined. Was the TLM teaching that went on not a combination of Direct Method as well as everything else?"

Dr. Roberts: "The TLM strategy was defined."

Dr. Smith: "John Carroll suggested a second traditional or "Modified Traditional" group."

Mrs. Allen: "TLM teachers had manuals."

Mr. Baranyi: "Do you feel that TLM category was too broad? Not well enough defined."

Several teachers voiced disagreement.

T_7 "My understanding of the TLM strategy called for a minimum of foreign language; translation; and vocabulary lists."

T_8 "The students were not encouraged in any way to converse in the foreign language. The only time they spoke in the foreign language was when they read."

Mr. Eisenstadt: "Teachers were handicapped by TLM rules. Some of my teachers complained about this. In most cases the teachers adhered rather well to the guidelines."

Dr. Roberts: "The Consultants talked of good and bad traditional. They were asked to set up a good traditional philosophy. The criteria were based on this philosophy. The basic philosophy, attitude and viewpoint for each strategy was developed from this conference. Fundamental guidelines and criteria for each strategy were developed from these basic philosophical viewpoints."

Mr. Berger: "It is often said that good teaching is poor research and good research is poor teaching. An 'eclectic' approach is probably best even in the most advanced audio-lingual approach, i.e. the teacher will take the best of several teaching approaches and adapt them. But, the Project asked teachers to give 20% of their teaching time, even if it conflicted with their view of good teaching. The 'experts' however, did agree to this strategy, I doubt therefore that it would have been poor teaching."

Dr. Smith: "Teachers' guidelines were so detailed that we have received requests for these as well."

T_9 "Is there a record of teachers who dropped out of the Project at the end of one and two years and their reasons?"

T_{10} "I felt fortunate to have been placed into the FSG group because this method is the best. How the teachers felt will be reflected in the student. For example, to teach TLM if the teacher did not feel this was the best way. The teacher's attitude plays a large role."

Several teachers voiced agreement.

T_{11} "If the teacher was assigned a strategy that she agreed with she could teach differently than if she did not believe in it."

T_{12} "Teachers brought their attitudes with them. Would this affect the new strategy in any way?"

Dr. Smith: "Most were in the strategy they liked."

Several teachers voiced agreement and disagreement regarding choice of strategy.

Dr. Roberts: "Anyone thinking he had a choice happened to get the strategy that he liked."

Mr. Berger: "There was no random assignment for TLM strategy; if no record positions were available AA lab was assigned; there was a choice, at times, with AR labs."

T_{13} "Are there statistics of teachers who were assigned a strategy which displeased them? Was there anyone that taught this way?"

T_{14} "I taught a method which I didn't like nor thought successful. That is the reason I didn't continue with 2nd year. The students in that class were far behind others."

T_{15} "When I started the assigned strategy I did not like it, at the end, however I did. My bitterness in the beginning may have had some effect on the students, at least in the first few months."

Dr. Smith: "Teachers' Opinion Scales indicated that at the end of 2 years - the kids were dull and not interested, but the teachers were still interesting and exciting."

T_{16} "The random assignment of strategies is a real situation; i.e. teachers are often told what to teach when they come to a new district."

T_{17} "Results may have been different had every teacher taught the strategy that he liked."

T_{18} (Mrs. Ott): "The teacher will use what he thinks is most important regardless of the textbook."

T_{19} "There was ways of adapting a traditional text."

T_{20} "I liked the method (TLM), the students did also and they worked hard because they were in the Project."

T_{21} "I taught FSM, even though I would not use it solely; I tried to adhere. After a year I didn't feel FSM was ineffective and became to like it. It gave me the opportunity for much testing. Students were not penalized for not having grammar."

T_{22} "When grammar is included, not only by analogy but analysis, students feel more secure and are happier. In the long run they get to appriciate language better."

Teachers were asked to respond to the following question: "Why did teachers drop out of the Project?"

Teachers deviated and were dropped.

Schools dropped out of Project.

Many students graduated.

Teacher responses:

T_1 "Would have involved switching from one school building to another."

T_2 "The district had no results of previous research and were afraid this would again happen."

T_3 "School District was involved in merger of 9 districts."

T_4 "Left the district, new district did not want to bother."

T_5 "Didn't feel her students were achieving satisfactorily."

T_6 "Switched schools and became a replicating Project teacher."

T_7 "Was on Sabbatical."

T_8 "Felt they were dropped because lab was always out of operation."

T_9 "I played down the Project; perhaps students reacted negatively. I did not make them feel they were special."

T_{10} "The Project class was not to be something special."

T_{11} "We were told not to tell the students. Why do students develop this attitude?"

T_{12} "The problem came with second year students. Some were followed, others in same class were not."

T_{13} "The number of tests we gave caused students to ask 'Does it count?' 'What are the results?' 'Where do I stand?' If we test and don't tell them results, this is not normal."

Mr. Baranyi: "Could not the tests be made a part of the actual school work?"

T_{14} "Impossible; students will discuss this."

T_{15} "Some students did not know there was a Project."

T_{16} "In spite of playing it down, students felt they were being treated differently."

T_{17} "In three years you cannot keep it down. I had to tell students that these tests did not count. Students now like to take these tests; have different attitudes."

Dr. Roberts: "At Workshops teachers were told classes, students were not to be considered 'special' so as not to influence results."

Mrs. Sandstrom: "Where do we go from here? What impact will this Project have on administrators. Eg. after Keating Report - for 5 years no language labs. This report will aid those opponents of language labs. It could paralyze the foreign language field unless there are factors for recommendations accompanying the Report."

Dr. Smith: "We must report the facts as we found them."

T_{18} "If tapes used were canned programs and same as those used in class - then the Project is not a valid evaluation of language labs."

Dr. Smith: "The lab is a place to practice what has already been learned."

T_{19} "The most important element is the human element; if the teacher is liked or not liked by the students."

Several teachers voiced agreement.

T_{20} "Was there a distinction made in the original groups between language labs and the electronic classroom."

Dr. Smith: "No, although TR, AA, AR labs were identified and lab strategies outlined."

Dr. Smith: "The 2nd year report is being compiled; it will be available to all."

Mr. Berger: "Encouraged by the interest, discussion and questions raised by Project teachers."